

KARNATAKA



GOVERNMENT

DEPARTMENT OF SCHOOL EDUCATION AND LITERACY

Learning outcomes Based Assessment (LBA) Question Bank

2026-2027

Mathematics

6th Standard

ENGLISH MEDIUM

**Department of State Education Research & Training centre
Banashankari 3rd Stage Bangalore -560085**

And

District Institute of Education & Training, Davanagere

ಪರಿಕಲ್ಪನೆ ಮತ್ತು ಮಾರ್ಗದರ್ಶನ	
ಶ್ರೀಮತಿ ರಶ್ಮಿ ಮಹೇಶ್.ವಿ, ಭಾ.ಆ.ಸೇ ಅಪರ ಮುಖ್ಯ ಕಾರ್ಯದರ್ಶಿಗಳು, ಶಾಲಾ ಶಿಕ್ಷಣ ಮತ್ತು ಸಾಕ್ಷರತಾ ಇಲಾಖೆ	
ಶ್ರೀಮತಿ. ಡಾ. ಕೆ. ವಿದ್ಯಾಕುಮಾರಿ, ಭಾ.ಆ.ಸೇ ರಾಜ್ಯ ಯೋಜನಾ ನಿರ್ದೇಶಕರು, ಸಮಗ್ರ ಶಿಕ್ಷಣ ಇಲಾಖೆ, ಬೆಂಗಳೂರು	ಶ್ರೀಮತಿ ಅನಿತಾ ವಿ ನಾಜ್ಜರೆ ನಿರ್ದೇಶಕರು, ಡಿ.ಎಸ್.ಆರ್.ಟಿ ಬೆಂಗಳೂರು
ಡಯಟ್ ಸಹಕಾರ	
ಪ್ರಾಂಶುಪಾಲರು ಶ್ರೀಮತಿ ಗೀತಾ. ಎಸ್. ಪ್ರಾಂಶುಪಾಲರು, ಡಯಟ್ ದಾವಣಗೆರೆ	ನೋಡಲ್ ಅಧಿಕಾರಿ ಶ್ರೀಮತಿ ಮಂಜಮ್ಮ ಲೋಕೇಶ್. ಎಸ್. ಹಿರಿಯ ಉಪನ್ಯಾಸಕರು, ಡಯಟ್ ದಾವಣಗೆರೆ
ಸಂಯೋಜನೆ	
ಶ್ರೀಮತಿ ರಾಧಾ ಪಿ ಹಿರಿಯ ಸಹಾಯಕ ನಿರ್ದೇಶಕರು, ಡಿ.ಎಸ್.ಆರ್.ಟಿ ಬೆಂಗಳೂರು	
ಸಂಪನ್ಮೂಲ ರಚನಾ ತಂಡ (2025-26)	
• ಶ್ರೀಮತಿ ನೇಮಾವತಿ. ಸಿ. ಎಂ. ಸ.ಶಿ. ಸ. ಹಿ. ಪ್ರಾ. ಶಾಲೆ. ಆವರಣೋಳ್ಳ ದಾವಣಗೆರೆ (ಉ.ವ) • ಶ್ರೀಮತಿ ಸಾವಿತ್ರಿ. ಕೆ. ಸ.ಶಿ. ಸ. ಹಿ. ಪ್ರಾ. ಶಾಲೆ. ಲೋಕಿಕೆರೆ. ದಾವಣಗೆರೆ (ದ.ವ)	• ಶ್ರೀಮತಿ ಮುಸರ್ಜತ್ ಫಾತಿಮಾ. ಎಸ್. ಸ.ಶಿ. ಪಿ.ಎಂ.ಶ್ರೀ ಕೆ.ಪಿ.ಎಸ್. ಚನ್ನಗಿರಿ. (ತಾ) • ಶ್ರೀಮತಿ ರಾಜೇಶ್ವರಿ ಅಂಗಡಿ. ಸ. ಶಿ. ಸ. ಪ್ರಾ.ಶಾ. ಮೆಳ್ಳೇಕಟ್ಟೆ. ದಾವಣಗೆರೆ (ಉ.ವ)
• ಶ್ರೀಮತಿ ಸೈಯಿದ ಕೌಸರ್ ತಸ್ನೀಮ್. ಸ. ಶಿ. ಸ.ದರ್.ಪ್ರೌಢ ಶಾಲೆ. ಮಲೇಬೆನ್ನೂರು. ಹರಿಹರ (ತಾ)	
ಸಂಪನ್ಮೂಲ ಪರಿಕ್ಷರಣಾ ತಂಡ (2026-2027)	
• ಶ್ರೀಮತಿ ನೇಮಾವತಿ. ಸಿ. ಎಂ. ಸ.ಶಿ. ಸ. ಹಿ. ಪ್ರಾ. ಶಾಲೆ. ಆವರಣೋಳ್ಳ ದಾವಣಗೆರೆ (ಉ.ವ) • ಶ್ರೀಮತಿ ಸಾವಿತ್ರಿ. ಕೆ. ಸ.ಶಿ. ಸ. ಹಿ. ಪ್ರಾ. ಶಾಲೆ. ಲೋಕಿಕೆರೆ. ದಾವಣಗೆರೆ (ದ.ವ)	• ಶ್ರೀಮತಿ ಸೈಯಿದ ಕೌಸರ್ ತಸ್ನೀಮ್. ಸ. ಶಿ. ಸ.ಉದ್.ಪ್ರೌಢ ಶಾಲೆ. ಮಲೇಬೆನ್ನೂರು. ಹರಿಹರ (ತಾ) • ಶ್ರೀಮತಿ ರಾಜೇಶ್ವರಿ ಅಂಗಡಿ. ಸ. ಶಿ. ಸ. ಪ್ರಾ.ಶಾ. ಮೆಳ್ಳೇಕಟ್ಟೆ. ದಾವಣಗೆರೆ (ಉ.ವ)
• ಶ್ರೀಮತಿ ಮುಸರ್ಜತ್ ಫಾತಿಮಾ. ಎಸ್. ಸ.ಶಿ. ಪಿ.ಎಂ.ಶ್ರೀ ಕೆ.ಪಿ.ಎಸ್. ಚನ್ನಗಿರಿ. (ತಾ)	
ಮಾರ್ಗದರ್ಶಕರು (2026-2027)	ಪರಿಶೀಲಕರು (2026-2027)
• ಶ್ರೀಮತಿ ಶೋಭಾ. ಜಿ. ಸ.ಶಿ. ಸ. ಹಿ. ಪ್ರಾ. ಶಾಲೆ. ಕರಿತಿಮ್ಮನಹಳ್ಳಿ ಬೆಂಗಳೂರು ದ. ವ-2	• ಶ್ರೀಮತಿ ಮುಸರ್ಜತ್ ಫಾತಿಮಾ. ಎಸ್. ಸ.ಶಿ. ಪಿ.ಎಂ.ಶ್ರೀ ಕೆ.ಪಿ.ಎಸ್. ಚನ್ನಗಿರಿ. (ತಾ)

ಮುನ್ನುಡಿ

ವಿದ್ಯಾರ್ಥಿಗಳಲ್ಲಿ ತರಗತಿ ನಿರ್ದಿಷ್ಟ ಕಲಿಕಾಫಲ ಆಧಾರಿತ ಕಲಿಕೆಯನ್ನು ಉಂಟುಮಾಡಲು ಹಾಗೂ ರಾಷ್ಟ್ರ ಮತ್ತು ರಾಜ್ಯ ಮಟ್ಟದ ಸಾಧನಾ ಸಮೀಕ್ಷೆಗಳಲ್ಲಿ ವಿದ್ಯಾರ್ಥಿಗಳ ಕಲಿಕಾ ಸಾಧನೆಯನ್ನು ಉತ್ತಮಪಡಿಸುವ ಮೂಲಕ ಶಾಲಾ ಶೈಕ್ಷಣಿಕ ವ್ಯವಸ್ಥೆಯನ್ನು ಬಲಪಡಿಸಲು ಹಾಗೂ ಕಲಿಕಾಫಲ ಆಧಾರಿತ ತರಗತಿ ಪ್ರಕ್ರಿಯೆಗಳನ್ನು ಪರಿಣಾಮಕಾರಿಗೊಳಿಸಲು ರಾಜ್ಯಮಟ್ಟದಲ್ಲಿ ಹಲವಾರು ಉಪಕ್ರಮಗಳನ್ನು ರೂಪಿಸಲಾಗಿದೆ. ತರಗತಿ ಪ್ರಕ್ರಿಯೆ, ಮೌಲ್ಯಾಂಕನ ಮತ್ತು ಮೌಲ್ಯಮಾಪನ ಪ್ರಕ್ರಿಯೆಗಳನ್ನು ಸಾಮರ್ಥ್ಯಾಧಾರಿತ, ಕಲಿಕಾ ಫಲ ಆಧಾರಿತವಾಗಿ ನಿರ್ವಹಿಸಲು ಹಾಗೂ ವಿದ್ಯಾರ್ಥಿಗಳಲ್ಲಿ ನಿರೀಕ್ಷಿತ ಕಲಿಕಾ ಸಾಮರ್ಥ್ಯಗಳನ್ನು ಬೆಳೆಸಲು ರಾಜ್ಯ ಶೈಕ್ಷಣಿಕ ಸಂಶೋಧನೆ ಮತ್ತು ತರಬೇತಿ ಇಲಾಖೆ (DSERT) ಯಿಂದ ಕ್ರಮಗಳನ್ನು ಕೈಗೊಳ್ಳಲಾಗುತ್ತಿದೆ. ಈ ಹಿನ್ನೆಲೆಯಲ್ಲಿ 2026-27ನೇ ಶೈಕ್ಷಣಿಕ ಸಾಲಿಗೆ ಒಂದನೇ ತರಗತಿಯಿಂದ ಹತ್ತನೇ ತರಗತಿಯವರೆಗೆ 'ಗಣಿತ' ವಿಷಯದಲ್ಲಿ ಕಲಿಕಾಫಲ ಆಧಾರಿತ ಮೌಲ್ಯಾಂಕನ ಪ್ರಶ್ನಕೋಶಿಯನ್ನು (LBA) ರೂಪಿಸಲಾಗಿದೆ.

ಪ್ರತಿ ತರಗತಿಗೆ ಸಂಬಂಧಿಸಿದ ಕಲಿಕಾ ವಿಷಯಗಳಲ್ಲಿ, ಕಲಿಕಾ ಸಾಮರ್ಥ್ಯಗಳು ಹಾಗೂ ಕಲಿಕಾ ಫಲಗಳ ಆಧಾರದಲ್ಲಿ ಪ್ರಶ್ನೆಗಳನ್ನು ರೂಪಿಸಲಾಗಿದೆ. ಗಣಿತ ವಿಷಯದಲ್ಲಿ ಪರಿಕಲ್ಪನಾತ್ಮಕ ಜ್ಞಾನ, ತಿಳಿವಳಿಕೆ, ಕೌಶಲ, ಅನ್ವಯ, ಸಮಸ್ಯಾ ಪರಿಹಾರ ಕೌಶಲಗಳು, ಗಣಿತೀಯ ಅನ್ವಯನ, ಸೃಜನೆ ಹಾಗೂ ಉನ್ನತ ಮಟ್ಟದಲ್ಲಿ ವಿದ್ಯಾರ್ಥಿಗಳ ಕಲಿಕೆಯನ್ನು ಮೌಲ್ಯಾಂಕನ ಮಾಡುವ ಉದ್ದೇಶದಿಂದ ವಸ್ತುನಿಷ್ಠ, ಸಂಕ್ಷಿಪ್ತ, ವಿವರಣಾತ್ಮಕ, ಅನ್ವಯಿಕ, ಕೌಶಲಾಧಾರಿತದಂತಹ ವಿವಿಧ ಸ್ವರೂಪದ ಪ್ರಶ್ನೆಗಳನ್ನು ರಚಿಸಲಾಗಿದೆ. ಇವು ಕಲಿಕಾರ್ಥಿಗಳಲ್ಲಿ ಉನ್ನತ ಮಟ್ಟದ ಚಿಂತನಾ ಕೌಶಲಗಳನ್ನು ಮೂಡಿಸಲು ಉಪಯುಕ್ತವಾಗಿವೆ.

ಕಲಿಕಾ ಫಲ / ಸಾಮರ್ಥ್ಯ ಆಧಾರಿತ ಮೌಲ್ಯಾಂಕನವು ಕೇವಲ ವಿದ್ಯಾರ್ಥಿಗಳ ಶೈಕ್ಷಣಿಕ ಸಾಧನೆಯನ್ನು ಅಳೆಯುವ ಸಾಧನವಲ್ಲ; ಬದಲಾಗಿ ಕಲಿಕೆಯ ಗುಣಮಟ್ಟವನ್ನು ವೃದ್ಧಿಸುವ, ಬೋಧನಾ ಪ್ರಕ್ರಿಯೆಯನ್ನು ಪರಿಣಾಮಕಾರಿಯಾಗಿಸುವ ಹಾಗೂ ಪ್ರತಿ ವಿದ್ಯಾರ್ಥಿಯ ಕಲಿಕಾ ಪ್ರಗತಿಯನ್ನು ನಿರಂತರವಾಗಿ ಗುರುತಿಸಿ, ಅಗತ್ಯ ಶೈಕ್ಷಣಿಕ ಬೆಂಬಲ ಒದಗಿಸುವ ಪ್ರಮುಖ ಶೈಕ್ಷಣಿಕ ಸಾಧನವಾಗಿದೆ. ಈ ಹಿನ್ನೆಲೆಯಲ್ಲಿ ಶಿಕ್ಷಕರು ಸದರಿ ಪ್ರಶ್ನಕೋಶಿಯನ್ನು ತರಗತಿಪ್ರಕ್ರಿಯೆ, ಮೌಲ್ಯಾಂಕನ ಮತ್ತು ಮೌಲ್ಯಮಾಪನ ಪ್ರಕ್ರಿಯೆಗಳಲ್ಲಿ ನಿರಂತರವಾಗಿ (CCE) ಬಳಸುವುದು ಅತ್ಯವಶ್ಯಕವಾಗಿದೆ.

ರಾಜ್ಯದ ಎಲ್ಲಾ ಶಾಲೆಗಳಲ್ಲಿ ಗಣಿತ ಬೋಧನಾ-ಕಲಿಕಾ ಪ್ರಕ್ರಿಯೆಯನ್ನು ಮತ್ತಷ್ಟು ಉತ್ತಮಗೊಳಿಸುವಲ್ಲಿ ಹಾಗೂ ವಿದ್ಯಾರ್ಥಿಗಳ ಕಲಿಕಾಫಲ ಆಧಾರಿತ ಕಲಿಕೆಯನ್ನು ಉನ್ನತೀಕರಿಸುವಲ್ಲಿ ಈ ಕಲಿಕಾಫಲ ಆಧಾರಿತ ಮೌಲ್ಯಾಂಕನ ಪ್ರಶ್ನಕೋಶಿಯು ಉಪಯುಕ್ತವಾಗಲಿದೆ. ಸದರಿ ಕಾರ್ಯದಲ್ಲಿ ಭಾಗವಹಿಸಿದ ವಿಷಯ ಪರಿಣಿತರು, ಸಂಪನ್ಮೂಲ ವ್ಯಕ್ತಿಗಳು, ಶಿಕ್ಷಣ ತಜ್ಞರಿಗೆ ಇಲಾಖೆಯು ಕೃತಜ್ಞತೆಗಳನ್ನು ಸಲ್ಲಿಸುತ್ತದೆ.

ನಿರ್ದೇಶಕರು

ಡಿ.ಎಸ್.ಇ.ಆರ್.ಟಿ, ಬೆಂಗಳೂರು

ಶಿಕ್ಷಕರಿಗೆ ಮಾರ್ಗಸೂಚಿ

1. ಶಿಕ್ಷಕರು, ಸಂಪನ್ಮೂಲ ವ್ಯಕ್ತಿಗಳು, ಇಲಾಖೆಯ ಎಲ್ಲಾ ಹಂತದ ಅನುಷ್ಠಾನಾಧಿಕಾರಿಗಳು ಮೊದಲಿಗೆ ಪಠ್ಯಕ್ರಮದ ಗುರಿಗಳು, ಸಾಮರ್ಥ್ಯಗಳು ಮತ್ತು ಕಲಿಕಾಫಲಗಳ ಬಗ್ಗೆ ಸ್ಪಷ್ಟವಾಗಿ ಅರಿತುಕೊಳ್ಳಬೇಕು.
2. ಮಕ್ಕಳು ಆಯಾ ತರಗತಿ ಹಾಗೂ ವಿಷಯವಾರು ಸಾಧಿಸಬೇಕಾದ ಕಲಿಕಾಫಲಗಳಿಗೆ ಪೂರಕವಾಗಿ ಇಲ್ಲಿ ಚಟುವಟಿಕೆಗಳು ಹಾಗೂ ಪ್ರಶ್ನೆಗಳನ್ನು ನೀಡಲಾಗಿದೆ. ಶಿಕ್ಷಕರು ತಮ್ಮ ತರಗತಿ ಪ್ರಕ್ರಿಯೆಯಲ್ಲಿ ಮಕ್ಕಳು ಕಲಿಕಾಫಲಗಳನ್ನು ಸಾಧಿಸಲು ಪೂರಕವಾಗಿ ಇವುಗಳನ್ನು ಸಂದರ್ಭೋಚಿತವಾಗಿ ಬಳಸುವುದು.
3. ತರಗತಿ ಪ್ರಕ್ರಿಯೆಯಲ್ಲಿ ಹಂತ ಹಂತವಾಗಿ ಕಲಿಕಾಫಲ ಆಧಾರಿತ ಚಟುವಟಿಕೆಗಳನ್ನು ಬಳಸುವ ಮೂಲಕ ಮಕ್ಕಳನ್ನು ತೊಡಗಿಸಿಕೊಳ್ಳುವುದು ಹಾಗೂ ಮೌಲ್ಯಮಾಪನ ಪ್ರಕ್ರಿಯೆಯಲ್ಲಿ ಕಲಿಕಾಫಲ ಆಧಾರಿತ ಪ್ರಶ್ನಾಕೋಶದಲ್ಲಿ ನೀಡಿರುವ ಪ್ರಶ್ನೆಗಳನ್ನು ಅವಶ್ಯಕತೆಗಳಿಗನುಗುಣವಾಗಿ ಅಭ್ಯಾಸ ಮಾಡಿಸುವುದು.
4. ವಿದ್ಯಾರ್ಥಿಗಳ ಕಲಿಕಾ ಅಂತರವನ್ನು ಗುರುತಿಸಿ ಸೂಕ್ತ ಚಟುವಟಿಕೆಗಳನ್ನು ಕೈಗೊಳ್ಳುವ ಮೂಲಕ ತರಗತಿ ನಿರ್ದಿಷ್ಟ ಕಲಿಕೆಗೆ ಅಗತ್ಯ ಕ್ರಮವಹಿಸುವುದು.
5. ಪ್ರಶ್ನಾಕೋಶಿಯು ಜ್ಞಾನ, ಗ್ರಹಿಕೆ, ಅನ್ವಯ, ಅಭಿವ್ಯಕ್ತಿ, ಪ್ರಶಂಸೆ, ವಿಮರ್ಶಾತ್ಮಕತೆ ಹಾಗೂ ಹೈಯರ್ ಆರ್ಡರ್ ಪ್ರಶ್ನೆಗಳನ್ನು ಒಳಗೊಂಡಿದೆ. ಹೈಯರ್ ಆರ್ಡರ್ ಪ್ರಶ್ನೆಗಳು ಹೋಲಿಕೆ, ಸಾಮ್ಯತೆ ಮತ್ತು ವ್ಯತ್ಯಾಸ, ವಿಶ್ಲೇಷಣಾ ಸಾಮರ್ಥ್ಯ, ಮೌಲ್ಯಮಾಪನ ಮತ್ತು ಸೃಜನಶೀಲತೆಯಂತಹ ಆಯಾಮಗಳನ್ನು ಒಳಗೊಂಡಿರುತ್ತದೆ.
6. ಕೇವಲ ಅಂಕಗಳನ್ನು ನಮೂದಿಸುವುದಕ್ಕಾಗಿ, ಅಥವಾ ಪಠ್ಯವಸ್ತುವನ್ನು ಪೂರ್ಣಗೊಳಿಸುವುದಕ್ಕಾಗಿ ಕಲಿಕಾ ಫಲಾಧಾರಿತ ಮೌಲ್ಯಾಂಕನವನ್ನು ಜಾರಿಗೊಳಿಸದೇ, ವಿದ್ಯಾರ್ಥಿಗಳ ಸಾಮರ್ಥ್ಯ ವೃದ್ಧಿಗಾಗಿ ಹಾಗೂ ಕೌಶಲಗಳ ಪ್ರಾಪ್ತಿಗಾಗಿ ಕಲಿಕಾಫಲ ಆಧಾರಿತ ಮೌಲ್ಯಾಂಕನ ಪ್ರಶ್ನಾಕೋಶಿಯನ್ನು ಪರಿಣಾಮಕಾರಿಯಾಗಿ ಬಳಕೆ ಮಾಡುವುದು.
7. ಶಿಕ್ಷಕರು ಎಲ್ಲಾ ವಿಷಯಗಳಲ್ಲೂ ನಿಗದಿತ ಸಾಮರ್ಥ್ಯಗಳಿಸುವುದಕ್ಕಾಗಿ ಕಲಿಕಾನುಭವಗಳನ್ನು ನೀಡುವ ಹಾಗೂ ಮಕ್ಕಳ ಬೌದ್ಧಿಕ ಬೆಳವಣಿಗೆಗೆ ಸಹಕರಿಸುವ ನಿಟ್ಟಿನಲ್ಲಿ ಚಿಂತಿಸಿ ಈ ಶೈಕ್ಷಣಿಕ ಉಪಕ್ರಮವನ್ನು ಕಾರ್ಯಗತಗೊಳಿಸಬೇಕಿದೆ.
8. ಆಯಾಯ ತರಗತಿಯಲ್ಲಿ ಕಲಿಕೆಯನ್ನು ಅನುಕೂಲಿಸುತ್ತಿರುವ ವಿಷಯವಾರು ಶಿಕ್ಷಕರು ತಮ್ಮ ತಮ್ಮ ವಿಷಯಗಳ ಪ್ರಶ್ನಾಕೋಶಿಯನ್ನು ಅರ್ಥಪೂರ್ಣವಾಗಿ ಬಳಸಿಕೊಂಡು ಮಕ್ಕಳಲ್ಲಿ ಅಪೇಕ್ಷಿತ ಕಲಿಕಾಫಲಗಳ ಸಾಧನೆಗಾಗಿ ಶ್ರಮಿಸುವುದು.
9. ಇಲಾಖೆಯ Website ನಲ್ಲಿ ಲಭ್ಯವಿರುವ ಕಲಿಕಾಫಲ ಆಧಾರಿತ ಮೌಲ್ಯಾಂಕನ ಪ್ರಶ್ನಾಕೋಶಿಯನ್ನು ಕೂಲಂಕಷವಾಗಿ ಅವಲೋಕಿಸುವುದು ಹಾಗೂ ಅವುಗಳನ್ನು ಕಲಿಕೆಯಲ್ಲಿ ಪರಿಣಾಮಕಾರಿಯಾಗಿ ಬಳಸುವುದು.
10. ಪ್ರಶ್ನಾಕೋಶಿಯನ್ನು ತರಗತಿ ಪ್ರಕ್ರಿಯೆ, ಮೌಲ್ಯಾಂಕನ, ಮೌಲ್ಯಮಾಪನ ಪ್ರಕ್ರಿಯೆಗಳಲ್ಲಿ ನಿರಂತರವಾಗಿ ಬಳಸುವುದು ಹಾಗೂ ಮಾಹಿತಿಯನ್ನು SATSನಲ್ಲಿ ಕಾಲಕಾಲಕ್ಕೆ ಇಂದೀಕರಿಸುವುದು.
11. LBA, ರೂಪಣಾತ್ಮಕ ಮೌಲ್ಯಾಂಕನ, ಸಂಕಲನಾತ್ಮಕ ಮೌಲ್ಯಮಾಪನ ಹಾಗೂ ಇತರೆ ಪರೀಕ್ಷೆಗಳಲ್ಲಿ, LBA ಯಲ್ಲಿರುವಂತೆ ಎಲ್ಲಾ ಸ್ವರೂಪದ ಪ್ರಶ್ನೆಗಳನ್ನು ಒಳಗೊಂಡ ಪ್ರಶ್ನೆಪತ್ರಿಕೆ ಸಿದ್ಧಪಡಿಸುವುದು ಹಾಗೂ ವಿಶ್ಲೇಷಣಾ ವರದಿಯನ್ನು ಆಧರಿಸಿ ಪರಿಹಾರಾತ್ಮಕ ಕ್ರಮಗಳನ್ನು ಕೈಗೊಳ್ಳುವುದು.
12. ಪ್ರಶ್ನಾಕೋಶಿಯಲ್ಲಿರುವ ಉತ್ತರ ಕೀಲಿಯನ್ನು ವಿಷಯ ಶಿಕ್ಷಕರು ಒಮ್ಮೆ ಅವಲೋಕಿಸಿ, ಖಚಿತಪಡಿಸಿಕೊಂಡು ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ ಅನುಕೂಲವಾಗುವಂತೆ ಅಪೇಕ್ಷಿತ ಉತ್ತರಗಳನ್ನು ಒದಗಿಸುವುದು.

Class-6 Mathematics LOs

Code	Competencies	Learning Outcomes	Chapter Name
CG-1- Understands numbers and sets of numbers (whole numbers, fractions, integers, rational numbers, and real numbers), looks for patterns, and appreciates relationships between numbers.	C-1.1 Develops the ability to read, write, compare, estimate, and perform operations with large whole numbers up to 20 digits, and expresses them in scientific notation using exponents and powers.	1. Use and play with numbers in daily life. 2. Identify and create number sequences, pose and solve number puzzles. 3. Identify and explore Super Cells, Kaprekar Constant, and Collatz Conjecture. Mark 4 digit and 5-digit numbers on number line 4. Estimate sums and differences, determine the possible number of digits in a given sum or difference	3. Number Play
	C-1.2 Discovers, identifies, and explores number patterns (e.g., multiples of 7, powers of 3, prime numbers) and explains relationships between different patterns.	5. Play with number patterns, identify different types of patterns in numbers, shapes and formulate rules and solve related problems 6. Visualize number and shape sequences and compare their relationships.	1. Patterns in Mathematics 3. Number Play
		7. Identify and explain prime numbers, composite numbers, and co-prime numbers, write the given numbers as the product of prime factors. 8. Find factors and multiples of numbers and find the common multiples and common factors. Check the divisibility of given numbers.	5. Prime Time
	C-1.3 Learns about zero and negative numbers and performs arithmetic operations on them as described by Brahmagupta.	9. Identify and compare negative numbers, positive numbers, and zero; represent them on number line. 10. Perform and explain addition and subtraction on integers using models and apply them in daily life situations (temperatures, geographical cross sections) also solve various puzzles	10. The Other Side of Zero
	C-1.4 Explores sets of		

	numbers such as whole numbers, fractions, integers, rational numbers, and real numbers, and visualizes them on the number line.		
	C-1.5 Explores the concept of percentages and applies it to solve problems.		
	C-1.6 Explores and applies fractions, both as ratios and decimals, in everyday situations.	<i>11.</i> Define fractions and identify numerator and denominator. Classify different types of fractions. Represent fractions on a number line. <i>12.</i> Simplify fractions and arrange fractions in ascending and descending order and identify equivalent fractions. <i>13.</i> Perform and explain addition and subtraction of fractions and apply to real life situations	7. Fractions
CG-2- Understands the concepts of variable, constant, coefficient, expression, and (one-variable) equation, and uses these concepts to solve meaningful daily-life problems with procedural fluency.	C-2.1 Understands equality between numerical expressions and checks arithmetic equations.		
	C-2.2 Extends number representation using variables and algebraic expressions.		
	C-2.3 Forms and manipulates algebraic expressions using variables, coefficients, and constants.		
	C-2.4 Forms and solves linear equations to find unknown values, including in puzzles and word problems.		
	C-2.5 Develops personal methods for solving puzzles and problems using algebraic thinking.		

CG-3- Understands, formulates, and applies properties and theorems regarding simple geometric shapes (2D and 3D).	C-3.1 Describes, classifies, and understands relationships among different 2D and 3D shapes using their properties.		
	C-3.2 Explains the properties of lines, angles, triangles, quadrilaterals, and polygons and applies them in problem-solving.	14. Identify and construct points, line segment, line, ray, and angle. 15. Classify types of angles, Compare the angles using different methods. 16. Measure and draw angles; Create their own protractor.	2. Lines and Angles
	C-3.3 Identifies attributes of 3D shapes, constructs them using materials, and uses 2D representations to visualize and solve problems.		
	C-3.4 Draws and constructs geometric shapes such as lines, parallel and perpendicular lines, angles, and simple triangles using a compass and straightedge.	17. Construct circles and arcs using geometric instruments when the radius is given. 18. Construct squares, rectangles, and other geometric figures according to given data using compass and ruler. 19. Apply these constructions in real-life situations to draw various figures.	8. Playing with Constructions
	C-3.5 Understands congruence and similarity and identifies similar and congruent triangles.		
CG-4- Develops understanding of perimeter and area for 2D shapes and uses them to solve day-to-day life problems.	C-4.1 Discovers and uses formulas for the area of squares, triangles, parallelograms, and trapeziums, and finds areas of composite shapes.	20. Explain the meaning of perimeter and area of closed figures and find area and perimeter using practical formulas. Use appropriate units for perimeter and area. 21. Calculate area and perimeter of different shapes in daily life situations (rectangle, square, triangle), solve area maze puzzles	6. Perimeter and Area
	C-4.2 Learns the Baudhayana–Pythagoras theorem, explores geometric proofs, and studies related constructions from the Sulba-Sutras.		
	C-4.3 Creates tiling designs		

	using 2D shapes and appreciates their use in Indian and world art.		
	C-4.4 Develops familiarity with fractals and recognizes their appearance in nature and art.		
CG-5- Collects, organises, represents (graphically and in tables), and interprets data/information from daily-life experiences.	C-5.1 Collects, organizes, and interprets data using mean, median, and mode.	22. Collect data by various methods and identify maximum and minimum values. Analyze data and develop skills in creating pictographs.	4. Data Handling and Presentation
	C-5.2 Selects, creates, and uses graphs such as pictographs, bar graphs, histograms, line graphs, and pie charts to interpret data.	23. Draw pictographs and bar graphs and interpret the data.	
CG-6- Develops mathematical thinking and the ability to communicate mathematical ideas logically and precisely.	C-6.1 Uses inductive and deductive reasoning to formulate definitions, make conjectures, and develop proofs in algebra, number theory, and geometry.		
CG-7- Engages with puzzles and mathematical problems and develops own creative methods and strategies to solve them.	C-7.1 Demonstrates creativity in discovering solutions to puzzles and appreciates different approaches by others.	24. Solve puzzles related to various topics.	All Chapters
	C-7.2 Engages in and appreciates the creativity and aesthetics of puzzle-making and puzzle-solving.		
CG-8- Develops basic skills and capacities of computational thinking, namely, decomposition, pattern recognition, data representation, generalisation, abstraction, and algorithms in order to solve problems where such techniques of computational thinking are effective.	C-8.1 Applies programmatic thinking, including iteration, symbolic representation, logical operations, and algorithmic problem-solving.		
	C-8.2 Learns systematic counting, listing, reasoning,		

	pattern recognition, data representation, and algorithm design, while understanding correctness and efficiency.		
CG-9- Knows and appreciates the development of mathematical ideas over a period of time and the contributions of past and modern mathematicians from India and across the world.	C-9.1 Recognizes the historical development of mathematical concepts across different civilizations.		
	C-9.2 Knows and appreciates the contributions of Indian mathematicians such as Aryabhata, Brahmagupta, Bhaskara, Ramanujan, and others.	25. Appreciate the contribution of Brahmagupta for adding and subtracting integers. 26. Appreciate the contribution of Brahmagupta for adding and subtracting fractions.	10. The other side of zero 7. Fractions
CG-10-Knows about and appreciates the interaction of Mathematics with each of their other school subjects.	C-10.1 Recognizes connections between Mathematics and subjects such as Science, Social Science, Visual Arts, Music, Vocational Education, and Sports.	27. Identify (triangle, rectangle, square, circle, etc.) symmetrical figures in various shapes 28. Determine the number and types of lines of symmetry, angles of symmetry, and angles of rotation. 29. Appreciate the connections and integration of mathematics with other subjects.	9. Symmetry All chapters

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Chapter – 1

Patterns in Mathematics

LO's No	Learning Outcomes	Question Number
5	Play with number patterns, identify different types of patterns in numbers, shapes and formulate rules and solve related problem	1 to 26, 29 to 57, 60 to 62, 65,68,69
6	Visualize number and shape sequences and compare their relationships.	27,28,58,59,63, 64,66,67,70,71

1. Weightage To Objectives :

Sl.NO	Objectives	No. of questions	Marks	Percentage
1	Knowledge	18	19	16%
2	Understanding	28	36	30%
3	Application	8	19	16%
4	Skill	17	46	38%
Total		71	120	100%

2. Weightage To Difficulty Level :

Sl.NO	Difficulty level	No. of questions	Marks	Percentage
1	Easy	18	22	18%
2	Average	36	63	53%
3	Difficult	17	35	29%
Total		71	120	100%

Chapter – 1

Patterns in Mathematics

I. Choose the correct answer from the given four alternatives

$16 \times 1 = 16$

1. The next number of the sequence 9, 18, 27, 36. (U-Easy)

A. 100
B. 81
C. 45
D. 65
2. The next two numbers of the sequence 5, 10, 20, 40. (K-Average)

A. 80 and 160
B. 60 and 80
C. 40 and 50
D. 50 and 60
3. The fifth number of the sequence 1, 4, 9, 16. (U-Difficult)

A. 15
B. 25
C. 49
D. 20
4. The next term of the sequence 1, 11, 111, 1111. (K-Easy)

A. 111111
B. 111
C. 11111
D. 1111111
5. The missing terms in the sequence A1, B2, C3, D4, ____, F6 (U-Average)

E5
B. D5
C. E8
D. F5
6. The number which does not belongs to the pattern 2, 4, 8, 16, 34, 64 ____ (A-Difficult)

A. 2
B. 8
C. 64
D. 34

7. If we continue the pattern then we get. (K-Easy)

A.

B.

C.

D.

8. Next pattern of the sequence (U-Average)

A.

B.

C.

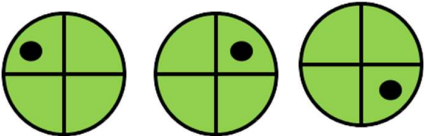
D.

9. The fifth term of the pattern AB, BC, CD, DE ____ (K-Average)

A. FG
B. DF
C. EF
D. EE

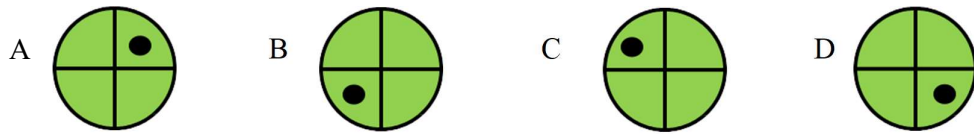
10. The sequence which does not belong to this pattern ae,bf, cg, dh, ek, fi (S-Difficult)

A. ae
B. eg
C. ek
D. fi



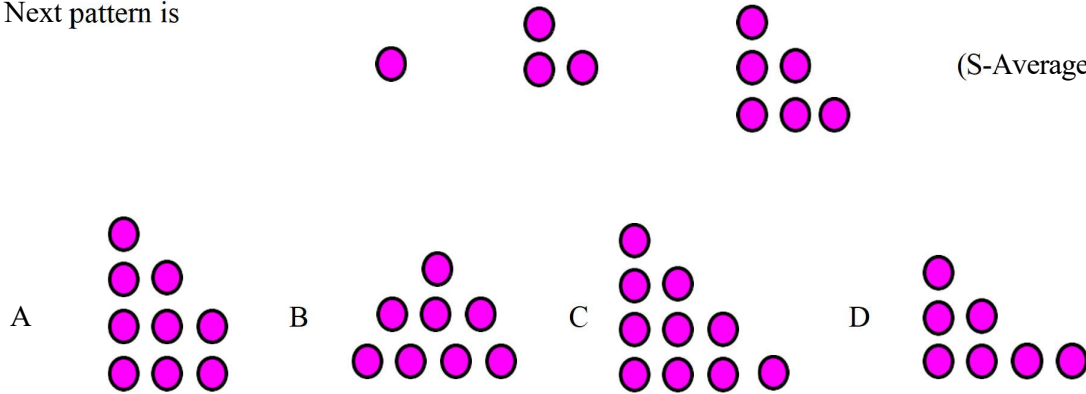
11. The next picture of this sequence

(U-Average)



12. Next pattern is

(S-Average)



13. The next number of the pattern 2, 6, 12, 20, 30

(U-Average)

- A. 36 B. 40 C. 42 D. 48

14. The next pattern in the sequence



(U-Average)



15. The missing number in the sequence: 8, 16, ____, 64, 128 (S- Average)

- A. 24 B. 32 C. 36 D. 49

16. In a pattern each term is the 5 multiplied by the previous number. If the first number is 2. then the forth number is _____ (U-Difficult)

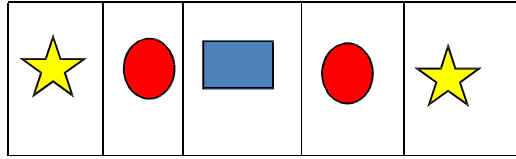
- A. 50 B. 100 C. 125 D. 250

II. Fill up the blanks with suitable answers.

$$12 \times 1 = 12$$

17. The sequence of numbers 1, 3, 6, 10, 15.... are called (K-Average)

18. The sequence of numbers 1, 4, 9, 16, 25.... are called _____ (K-Easy)
 19. The sequence of numbers 1, 8, 27, 64 _____ (K-Difficult)
 20. The next shape of this sequence is _____ (S-Easy)



21. The missing vowel in the sequence. a, e, ___, o, u (U-Easy)
 22. The next term of the sequence 1, 4, 9, 16, 25 is _____ (U-Average)
 23. The sum of first three consecutive odd number is _____ (A-Average)
 24. The third triangular number is _____ (U-Average)
 25. The branch of Mathematics that studies pattern in shapes is called _____ (K-Easy)
 26. Regular polygon is called _____ (K-Average)
 27. when we count the numbers of lines in each shape in the sequence of complete graph, we get a _____ number series. (U-Difficult)
 28. The number of triangles in the third figure sequence of stacked triangles is _____. (U-Average)

III. If the statement is right put (✓) mark, if wrong put (×) mark. 8 × 1 = 8

29. Patterns can be made using numbers, shapes or letters. (K-Easy)
 30. The sequence 1, 3, 5, 7, 9... is a pattern of odd numbers. (U-Average)
 31. All patterns must increase in order in value. (U-Difficult)
 32. Pattern help in predicting the next number or figure in the sequence. (K-Average)
 33. In geometric patterns the shapes must be of same size. (U-Easy)
 34. The sequence 100, 90, 80, 70 follows a pattern with a common difference. (U-Easy)
 35. In a pattern the difference between consecutive terms is always same. (U-Average)
 36. A pattern is always created by a rule. (U-Average)

IV. Define the following. 5×1=5

37. Number sequence (K-Easy)
 38. Sequence of shapes (K-Easy)
 39. Triangular numbers (K-Average)
 40. Square numbers (K-Average)
 41. Cube numbers (K-Average)

V. Solve the following : 6×1=6

42. What is a numerical pattern? (K-Average)
 43. What is the next term of the pattern 3, 6, 9, 12 ? (A-Easy)
 44. Write the rule of this pattern 2, 4, 6, 8, 10, ... (U-Difficult)

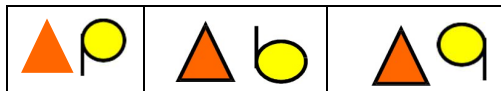
45. Write the missing number in the pattern. 65, 75, _____ 95. (U-Easy)
46. Write the rule of the sequence 2, 4, 8, 16, 32, (U-Average)
47. What is the rule of pattern in the sequence 3, 9, 27, 81,? (U-Easy)

VI. Solve the following.

$12 \times 2 = 24$

48. Write next two terms of the sequence A2, C4, E6, G8 (S-Average)
49. Write the missing terms 1, 3,..... , 7, 9,..... (A-Difficult)
50. Write next two term of the sequence Blue, green, red, Blue, green, (S-Easy)
51. Write the next term and rule of the sequence 3, 6, 12, 24 (U-Average)
52. Write the rule to find the next two terms of the sequence 9, 18, 27, 36... (U-Difficult)
53. 1, 2, 4, 7, 11 Which is the next term and why? (U-Average)

54. Next shape of this sequence.



(S-Difficult)

55. Write the rule of Virahanka numbers. (U-Average)
56. Find the sum of first five triangular numbers. (U-Average)
57. Write the first two numbers of the sequence and write the rule _____ , _____ ,
24 , 32 , 40 , 48 , 56 , 64 (S-Difficult)
58. Represent the sequence of odd numbers pictorially. (S-Average)
59. 6 is both a even number and a triangular number – Show it pictorially. (S-Average)

VII. Solve the following.

$2 \times 3 = 6$

60. Write the rule of given sequence and next four terms.
25, 30, 35, 40, 45 (A-Average)
61. 1, 2, 3, 5, 8, 13, 21 what are these numbers called and explain the rule of this
number sequence with example. (S-Average)

VIII. Solve the following problems.

$6 \times 4 = 24$

62. Write the next line of the sequence and the rule used. (A-Average)

1 2 1

1 2 3 2 1

63.

 1	 2	 3
---	---	---

 Write the fourth and tenth term with rule. (S-Easy)

64. Find the missing number with explanation. (A-Average)

4 , 12 , 36 , _____ , 324 _____

65. A school builds a staircase using blocks like

1st step - 2 blocks

2nd step - 6 blocks

3rd step - 12 blocks

4th step is 20 blocks and so on.

a) Identify the pattern rule

b) Find the number of blocks in 5th and 6th steps (S-Difficult)

66. Represent the four triangular number pictorially. (S-Average)

67. why are 1,4,9,16.... called square numbers? Prove it pictorially (S-Average)

IX. Solve the problems.

$$4 \times 5 = 20$$

68. 1, 7, 19, 37 represent these hexagonal numbers pictorially and write the rule with next two numbers. (S-Difficult)

69. Consider the following sequence of numbers 3, 6, 9, 12, (U-Average)

a) Write the rule of this sequence.

b) Write the next 3 numbers in the sequence.

c) How do you find the missing numbers in the sequence.

70. Represent the relation between adding counting numbers up and down and square numbers pictorially (S-Average)

71. What happens when you add up pairs of consecutive triangular numbers. What sequence do u get. Explain with picture. (S-Average)

CHAPTER -2

Lines and Angles

LO's	Learning Outcomes	Question Number
14	Identify and construct points, line segment, line, ray, and angle.	1 to 6,14,21,27,28,29, 30,31,32,33,61,62,63
15	Classify types of angles, Compare the angles using different methods	8,9,10,17,18,19,20,25, 26,35 to 38,64,67
16	Measure and draw angles; Create their own protractor	7,11,12,13,15,16,22,23, 24,39 to 60,65,66

Weightage to Objectives

SL.N O	Objectives	No. of questions	Mark s	Percentage
1	Knowledge	14	22	20%
2	Understanding	20	32	30%
3	Application	20	32	30%
4	Skill	13	21	20%
Total		67	107	100%

4. Weightage to difficulty level :

SL.NO	difficulty level	No. of questions	Marks	Percentage
1	Easy	20	32	30%
2	Average	34	54	50%
3	Difficult	13	21	20%
Total		67	107	100%

CHAPTER -2

Lines and Angles

I. Choose the correct answer from the given four alternatives.

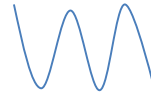
$$10 \times 1 = 10$$

1. The symbol of ray is

(K-Easy)



D.



2. The measure of a full turn in degrees

(K-Easy)

A. 90^0

B. 360^0

C. 180^0

D. 270

3. Clock which shows 30^0 angle

(K-Easy)

A.



B.



C.



D.



4. Number of line segments in this figure.

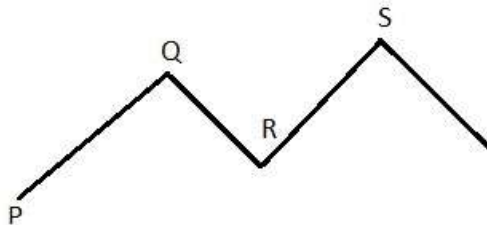
(K-Easy)

A. 1

B. 2

C. 3

D. 4



5. The shape formed by two rays with same starting point.

(K-Easy)

A. Point

B. Straight line

C. Plane

D. Angle

6. A geometric figure having a definite length and two end points is:

(K-Easy)

A. Point

B. Line segment

C. Line

D. Ray

7. The instrument used to measure an angle is:

(K-Easy)

A. Protractor

B. Scale (ruler)

C. Divider D. Compass

8. A complete angle consists of:

(K- Avarage)

A. Two right angles

B. Two straight angles

C. Four right angles

D. Both B & C

9. The measure of the angle formed when a perpendicular bisector is drawn to a straight line is:

(A-Average)

A. 180^0

B. 30^0

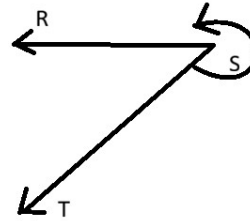
C. 60^0

D. 90^0

10. The given figure represents this type of angle :

(K-Average)

- A. Acute angle
- B. Reflex angle
- C. Obtuse angle
- D. Complete angle



II. Fill up the blanks.

7 × 1 = 7

11. The line that bisects an angle is called _____

(K-Average)

12. There are set of _____ numbers on the protractor.

(K-Average)

13. Angles are measured in _____.

(K-Average)

14. _____ determine a position.

(K-Easy)

15. When an angle of 110^0 is bisected, the measure of the resulting angles is equal to _____

(U- Difficult)

16. The protractor in a geometry box is graduated from _____ degree to _____ degree.

(K-Easy)

17. An angle measuring $(180^\circ - 45^\circ)$ is _____ type of angle.

(A- Average)

III. Match the following.

(K-Easy)

6 × 1 = 6

18.

- | | | |
|--|---|----------------|
| a. Equal to 90^0 | - | Acute angle |
| b. More than 180^0 and less than 360^0 | - | Right angle |
| c. Equal to 360^0 | - | Obtuse angle |
| d. More than 90^0 less than 180^0 | - | Straight angle |
| e. Equal to 180^0 | - | Reflex angle |
| f. Less than 90^0 | - | Complete angle |

IV. If the statement is right put (✓) mark, if wrong put (×) mark.

10 × 1 = 10

19. There are two right angles in a straight angle.

(U-Average)

20. An angle can measure more than 360^0

(K-Easy)

21. A straight line has definite measurement.

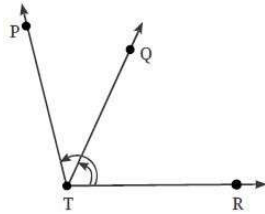
(K-Easy)

22. Protractor is used to measure the angles.

(K-Easy)

23. TQ is called angular bisector in this figure.

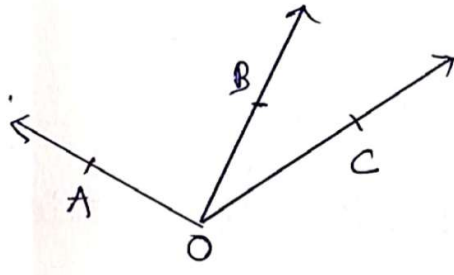
(K-Easy)



24. In a protractor, an angle can be measured from left to right or from right to left. (U-Easy)

25. A straight angle consists of two right angles. (U-Easy)

26. In the given figure, $\angle BOC$ is an obtuse angle. (U-Easy)



27. A triangle has three angles.

(K-Easy)

28. At 6:00 o'clock on a clock, a right angle is formed between the hands.

(U-Average)

V. Define the following

10 × 1 = 10

29. Point

(K-Average)

30. Line segment

(K-Average)

31. Straight line

(K-Average)

32. Ray

(K-Average)

33. Angle

(K-Average)

34. Right angle

(K-Easy)

35. Acute angle

(K-Easy)

36. Obtuse angle

(K-Easy)

37. Straight angle

(K-Easy)

38. Reflex angle

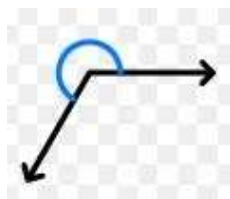
(K-Average)

VI. Measure and write the given angles by using protractor.

9 × 1 = 9

(S-Average)

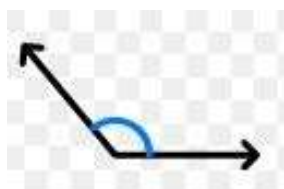
39.



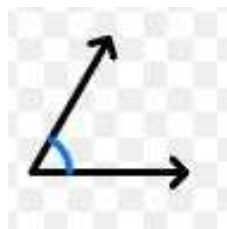
40.



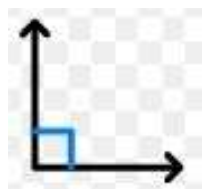
41.



42.



43.



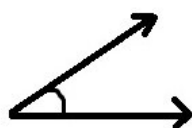
44.



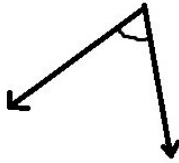
45.



46.



47.



Difficult)

**II. Construct the given angles by using protractor. (S-
 $10 \times 2 = 20$**

48. 120°

49. 80°

50. 192°

51. 70°

52. 150°

53. 60°

54. 85°

55. 90°

56. 180°

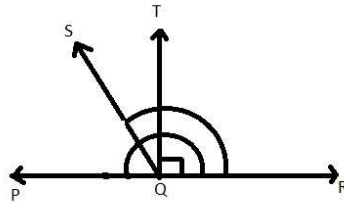
57. 45°

VIII. Solve the following problems.

$5 \times 3 = 15$

58. Measure and write the given angles by using protractor and write the type of the angles.

(S-Difficult)

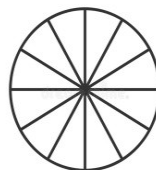


59. Express the following statements by drawing rough diagram.

(K-Difficult)

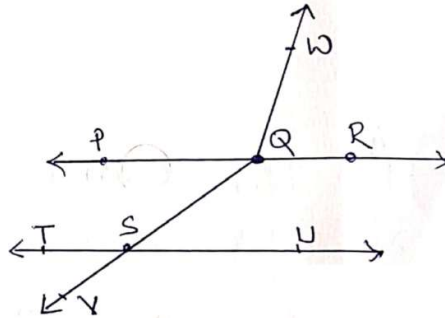
- i. AB and BC start from point B.
- ii. EF and CD intersect at 'O'
- iii. P and Q points are on straight line MN.

60. Ravi has divided a wheel into equal 18 parts using 18 lines. What is the degree measure of the angle between adjacent lines? (S-Difficult)



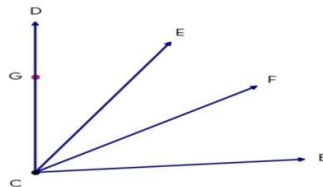
61. Name the following from the given figure: (U-Average)

- Four rays:
- Two line segments:
- Two lines:



62. Determine which angle is smaller in each of the following pairs:

- $\angle ECB$ or $\angle DCB$
- $\angle ECF$ or $\angle ECB$
- $\angle ECG$ or $\angle ECD$



(A-Average)

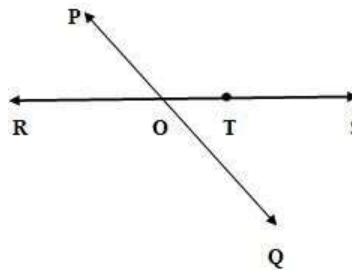
IX. Solve the problems.

$4 \times 4 = 16$

63. Name the following.

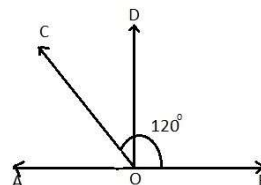
(K- Difficult)

- 6 points
- 4 angles
- 4 rays
- 2 straight lines and 1 segment



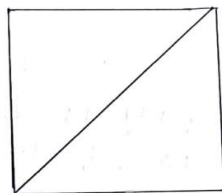
64. If $\angle BOC = 120^\circ$, find $\angle AOC$ and $\angle COD$.

(U-Difficult)



65. Take a square sheet of paper. Fold it diagonally across the corners. Draw a line along the fold. Name the angles formed between the folded line and the edges of the paper, and measure them.

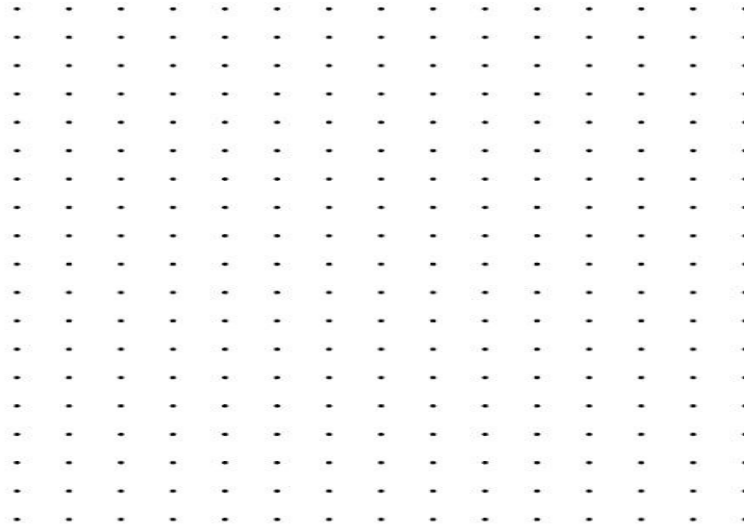
(A-Average)



66. By joining the grid dots given below, construct and name different types of angles.

(S-Average)

- a) Straight line,
- b) Right angle,
- c) Reflex angle,
- d) Acute angle

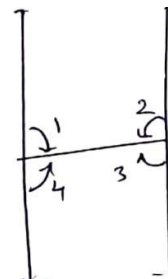
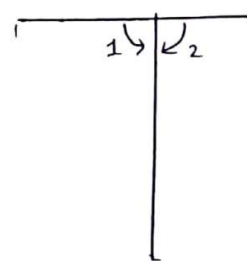
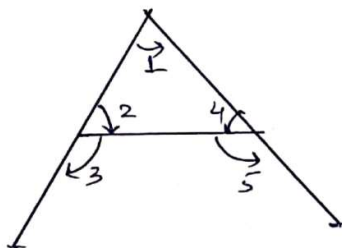
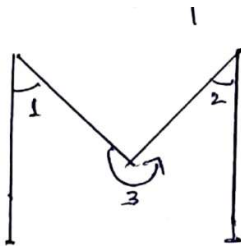


X.Solve:

$$1 \times 5 = 5$$

67. Observe the English letters given below (M, A, T, H). Identify and write down the types and the total count of acute angles, right angles, obtuse angles, straight lines, and reflex angles in each letter.

(A-Average)



Chapter – 3

Number play

LO's No	Learning Outcomes	Question Number
14	Identify and construct points, line segment, line, ray, and angle.	1 to 6,14,21,27,28,29 to 33, 61,62,63
15	Classify types of angles, Compare the angles using different methods.	8,9,10,17,18,19,20,25,26, 35 to 38, 64,67
16	Measure and draw angles; Create their own protractor.	7,11,12,13,15,16,22, 23,24,39 to 60,65,66

1. Weightage to Objectives :

Sl.NO	Objectives	No. of questions	Marks	Percentage
1	Knowledge	21	21	20 %
2	Understanding	17	30	30%
3	Application	16	30	30%
4	Skill	07	20	20%
Total		61	101	100 %

2. Weightage to difficulty level :

Sl. No	Difficulty Level	No. of questions	Marks	Percentage
1	Easy	26	23	30 %
2	Average	30	53	50%
3	Difficult	05	25	20 %
Total		61	101	100 %

Chapter – 3 Number play

I. Choose the correct answer from the given four alternatives.

12 × 1 = 12

1. The greatest 5-digit number using the digits 3, 1, 0 (K-Easy)
A. 10003 B. 33310 C. 33333 D. 33301
2. The 5-digit palindrome number using the digits 2, 5, 4 is (K-Easy)
A. 22254 B. 55542 C. 25452 D. 44522
3. In the following, the smallest three digit number that does not change even if the digits are written in reverse order. (U-Average)
A. 110 B. 101 C. 330 D. 909
4. The Kaprekar's magic number (K-Easy)
A. 1234 B. 4321 C. 6174 D. 9999
5. The main property of palindrome number (K-Average)
A. They are divisible by 10 B. They read the same forwards and backwards
C. They have no repeated digits D. They are always even
6. The winning number in the game "The 21 Game" (A-Easy)
A. 10 B. 21 C. 50 D. 100
7. On a number line these numbers represent specific amount of increasing by a fixed amount (K-Easy)
A. Even and odd numbers B. Prime numbers
C. Square numbers D. Equal intervals
8. I am a 4-digit palindrome number, my ten's digit is 3 more than my thousand's digit, sum of my digits is 22. What number am I. (A-Average)
A. 3773 B. 4774 C. 5775 D. 6776
9. How many times does the digit '7' appear in the numbers from 1 to 100? (U-Average)
A. 10 B. 15 C. 20 D. 25
10. By using dot (.) patterns, which of the following numbers can be arranged in all the three ways namely a line, a triangle and a rectangle. (U-Average)

A. 9 B. 10 C. 11 D. 12

11. The sum of the first four even numbers (K- Easy)

A.20 B.16 C. 08 D.10

12. Maximum number of super cells in the table of 11 cells in a row are ; (K- Average)

A.05 B.04 C. 03 D.06

II. Choose the correct answer for each of the following.

12 × 1 = 12

13.The smaller number whose digit sum is 15 is _____ [96000 / 000015] (K-Easy)

14.The smallest digit in the blank space of the number 1111 _ , so that the digit sum becomes an even number. [0 /1] (U-Easy)

15. _____ is not a method of estimation mentioned in the chapter?

[Finding exact values / Rounding numbers]

(K-Average)

16. _____ is the smallest number whose digit sum is 11 [29 / 74]

(K-Average)

17. The next number in the sequence 2, 4, 8, 16,----- ? [32 / 18]

(A-Average)

18. The biggest number whose digit sum is 12 _____ [93/84]

(A- Average)

19. The greatest two-digit prime number is _____. [95/97]

(K- Easy)

20. Using numbers 3,1,0 the biggest 5-digit number is _____. [33310 /01333]

(K- Easy)

21. The Kaprekar's magic number is _____. [6174/6473] (K-Easy)

22. The digit 7 appears _____ times in the tens place from 1 to 100. [11/10]

(U-Average)

23. In a grid a supercell is a number that is _____ than its neighbors directly above, below, left and right, [lesser/greater]. (U- Easy)

24. The only even prime number is _____. [1/2]

(K-Easy)

III. State true / false.

10 × 1 = 10

25. The largest 6-digit telephone number that can be formed by the digits 5, 3, 4, 7, 0, 8 using each digit only once is 875403 (K-Easy)

26. The largest 4-digit number formed by the digits 6, 7, 0, 9 using each digit only once is 976

(U-Average)

27. The numbers 4578, 4587, 5478, 5487 are in descending order.

(K-Average)

28. 8439 is an odd number.

(K-Easy)

29. 2787 is an even number.

(K-Easy)

30. The Kaprekar's constant is 7164.

(A-Easy)

31. The number 1221 is a palindrome number.

(K-Average)

32. The sum of 56560 and 3228 gives a five digit number.

(U- Easy)

33. The sum of digits of 672 and 564 is odd number.

(U-Difficult)

34. All even numbers are composite numbers.

(A-Easy)

IV. Solve the following problems.

$$9 \times 1 = 9$$

35. Define palindrome numbers? (K-Easy)
36. Write the kaprekar's constant? (A-Average)
37. Make the greatest five-digit number using the digits 1,2,7,9,4 without repetition? (A-Average)
38. Write the smallest four-digit palindrome number. (K-Easy)
39. Identify the super cells in the given table. (K-Average)

9780	9882	5662	1290	7662	8192
------	------	------	------	------	------

40. What happens to the number 11 in the Collatz conjecture? (U- Easy)
41. What is the difference of largest and smallest four digit number made by using digits 4, 6, 8, 1? (A-Average)
42. Find the sum of the first 7 odd numbers. (U- Average)
43. Find the sum of the first 10 natural numbers. (U- Average)

V. Solve the following problems.

$$7 \times 2 = 14$$

44. Colour or mark the super cells in the table below (U- Easy)

596	451	265	104	105	106	107	109	108	210
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

45. Fill the table below with only 4-digit numbers such that the super cell are exactly the coloured cells (S-Average)

6543								8653	
------	--	--	--	--	--	--	--	------	--

46. Color or mark the supercells in the table below : (S-Average)

6828	670	9435	3780	3780	7308	8000	5583	52
------	-----	------	------	------	------	------	------	----

47. Fill the table such that the cell having the second largest number is not a supercell

(U- Average)

999	980	943	850	785	473	927	846	298
-----	-----	-----	-----	-----	-----	-----	-----	-----

48. Fill the table below with only 4 digit numbers such that the supercells are exactly the colored cells.

(S-Average)

5346			1258				9635	
------	--	--	------	--	--	--	------	--

49. Fill in the table between such that we get as many supercells as possible . use numbers between 100 and 1000 without repetitions.

(U-Average)

--	--	--	--	--	--	--	--	--

50. Fill a table such that the cell having the second largest number is not a supercell.

(U- Average)

--	--	--	--	--	--	--	--	--

VI. Solve the following problems.

3× 3 = 9

51. State which number is in left, middle and right on number line.

(A-Average)

- i. 123
- ii. 234
- iii.111

52. Identify the numbers marked on the number lines below and label the missing numbers. Put a circle around the smallest number and a box around the largest number in the sequence below.

(S- Easy)



53. What is the sum of the smallest and the largest 5- digits palindrome . What is their difference?

(S- Easy)

VII. Solve the following problems.

$3 \times 4 = 12$

54. Complete the given table with 5-digit numbers whose digits are 1, 0, 4, 3 and 8 in some order.

The numbers in shaded box have a number greater than all its neighbors.

(A-Difficult)

84310	84301	34106	
	13408	40318	18304
	10348	40183	
	10843		

- Write the biggest number in the table.
- Write the smallest odd number in the table
- Write the greatest number smaller than 50000 in the table

55. Calculate sums of 3-digit number whose digits are consecutive (for example, 345) between 100 to 999
(A-Average)

56. This given grid has only one supercell (number greater than all its neighbours). If you exchange two digits of one of the number, there will be four supercells, figure out which digits to swap

16200	39344	29765
23609	62871	45306
19381	50319	38408

- Write the biggest number.
- Write the smallest number
- Write the number whose addition is 22.

(A- Difficult)

57. Pratibha uses the digits 4,7,3 & 2 and makes the smallest and largest 4- digit numbers with them : 2347 and 7432, the difference between the sum of these two numbers is 5085. the sum of these two numbers is 9779. choose 4- digit to make.
(U-Average)

- The difference between the largest and smallest numbers greater than 5085
- The difference between the largest and smallest number less than 5085.
- The sum of the largest and smallest numbers than 9779.
- The sum of the largest and smallest numbers less than 9779.

58. Check if the Collatz conjecture holds good for the starting number 100.

(S- Difficult)

59. Digit sum 14

- Write other numbers whose digits sum is 14.
 - What is the smallest number whose digit sum is 14?
 - What is the largest 5- digit numbers whose digit sum is 14?
 - How big a number can you form having the digit sum 14? Can you make an even bigger number?
- (A- Difficult)

60. Identify the numbers marked on the number lines below and fill the blank spaces.

(S- Average)

-
-
-
-

Put a circle around the smallest number and a box around the largest number in each of the sequence above.

VIII. Solve:

$$1 \times 5 = 5$$

- Complete table 2 with 5- digit numbers whose digits are 1, 0, 6, 3 & 9 in any order so that only a colored cell should have a number greater than all its neighbors.

(A- Difficult)

	96301	36109	
	13609	60319	19306
		60193	
	10963		

- The biggest number in the table is _____
- The smallest even number in the table is _____.
- The smallest number greater than 50,000 in the table is _____.

Chapter – 4

Data Handling and Presentation

LO's No	Learning Outcomes	Question Number
22	Collect data by various methods and identify maximum and minimum values. Analyze data and develop skills in creating pictographs	1,2,6 to 11,13 to 19,23 to 26, 28,33,34,38 to 52,58,59,61,62, 65,66,77 to 79 81
23	Draw pictographs and bar graphs and interpret the data.	3,4,5,12,20,21,22,27,29,30,31, 32,35,36,37,53,54,55,56,57,60, 63,64,67 to 76 80,82

1. Weightage To Objectives :

SL.N O	Objectives	No. of questions	Mark s	Percentage
1	Knowledge	16	31	20%
2	Understanding	25	47	30%
3	Application	25	47	30%
4	Skill	16	31	20%
Total		82	156	100%

2. Weightage To Difficulty Level :

SL.NO	difficulty level	No. of questions	Marks	Percentage
1	Easy	25	47	30%
2	Average	41	78	50%
3	Difficult	16	31	20%
Total		82	156	100%

Chapter – 4

Data Handling and Presentation

I. Choose the correct answer from the given 4 alternatives.

5 × 1 = 5

1. Which of the following is called data? (K-Easy)
A. Numbers only B. Collection of facts and information C. Shapes only D. Tables only
2. Which symbol is used to record frequency quickly? (K-Easy)
A. Tally marks B. Arrow marks C. Stars D. Circles
3. A pictograph represents data using _____. (K-Easy)
A. Equations B. Fractions C. Angles D. Pictures
4. In a bar graph, all bars must have _____. (K-Average)
A. Different widths B. Equal widths C. No spacing D. Curved shapes
5. Which graph is best to compare heights of mountains? (K-Average)
A. Horizontal graph B. Pie chart C. Vertical bar graph D. Line graph

II. Fill in the blanks with suitable answers.

5 × 1 = 5

6. The collection of any facts, measurements, numbers or observations that convey information about those things is called _____. (K-Average)
7.  The number which represents this tally marks is _____. (K-Average)
8. In _____ we can represent data in the form of bars. (K-Difficult)
9. The number of times the value occurs in the data is called _____. (K-Average)
10. _____ graph represents data through pictures. (K-Difficult)
11. If in a bar graph 1 unit = 10 lakh, then a bar of 6 units represents _____ value. (A-Easy)
12. A pictograph uses a _____. (U-Easy)
13. Bars in a bar graph are separated by _____ spaces. (K-Easy)
14. Data arranged in order is easier to _____. (U-Average)

15. A vertical bar graph is also called a _____ graph.

(K-Average)

III. Match the Following

5 × 1 = 5

(U-Average)

16.

Column A	Column B
a. Data	Number of occurrences
b. Tally marks	Collection of information
c. Pictograph	Quick counting
d. Bar graph	Uses pictures
e. Frequency	Equal width bars

IV. If the statement is right put (✓) mark, if wrong put (×) mark.

11 × 1 = 11

17. Bar graph can be represented only by vertical bars.

(K-Easy)

18. 5 repeated observation can represent like this /////

(K-Easy)

19. Number data can be represented by a pictograph and bar graph

(K-Easy)

20. Pictograph is suitable for large data.

(K-Easy)

21. Infographics are a way of presenting information more clearly using attractive visuals. (K-Easy)

22. Bar graphs have columns of equal widths.

(K-Easy)

23. A pictograph uses symbols to represent data.

(K-Easy)

24. Bars in a bar graph may have different widths.

(K-Easy)

25. Frequency means number of occurrences.

(K-Easy)

26. Scale is unnecessary in pictographs.

(K-Average)

27. Data can help us make conclusions.

(K-Average)

V. In the following, write the related word that matches the third word based on the relationship between the first two words

5 × 1 = 5

28. Frequency : Number of occurrences :: Data : _____

(K-Easy)

29. Picture : Pictograph :: Bar : _____

(K-Easy)

30. Scale : Pictograph :: Unit length : _____

(K-Average)

31. Vertical bars : Column graph :: Pictures : _____

(K-Average)

32. Tally marks : Counting :: Graph : _____

(K-Average)

VI. Define the following.

$8 \times 1 = 8$

33. Data (K-Difficult)
34. Frequencies (K-Difficult)
35. Pictographs (K-Difficult)
36. Bar graphs (K-Difficult)
37. Infographics (K-Difficult)
38. Tally marks. (K-Average)
39. Raw data. (K-Average)
40. Representation of data. (K-Average)

VII. Solve the following questions.

$11 \times 1 = 11$

41. Observe the chart of 20 students weight (in Kilogram) and write the number of students whose weight is above 50 Kg. (U-Average)

50 41 51 44 48 41 49 42 44 46
48 52 43 45 42 49 45 43 44 62.

42. Observe the following data and write the names of students who buys the same number of books . (U-Easy)

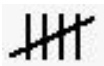
Students Name	Naveen	Leela	Sara	Rajath	Krishiv	Nanda
Number of books purchased	5	4	3	6	4	1

43. According to the table, which sweet is less liked by students. (U-Easy)

Jalebi	Jamoon	Jahangeer	Rasagulla	Jalebi
Kesaribath	Jalebi	Jamoon	Jahangeer	Rasagulla

44. If  = 3 plants, How many picture of plants have to be drawn to represent 21 plants

(U-Easy)

45. If  = 5  How much? (U-Average)

46. Represent 13 Frequency number in tally lines.

(S-Average)

47. Find the frequency of 5 in the data: 3, 5, 5, 4, 5, 6.

(U-Easy)

48. If one symbol represents 10 students, how many students are represented by 4 symbols?

(U-Easy)

49. In a bar graph, 1 unit = 5 books. How many books are represented by 6 units? (U-Easy)

50. Arrange the data in ascending order: 6, 2, 5, 4, 3.

(Average)

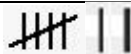
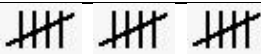
51. Write the smallest number from the data: 8, 3, 5, 7, 2.

(U-Easy)

VIII. Solve the following question by observing the given data.

$$11 \times 2 = 22$$

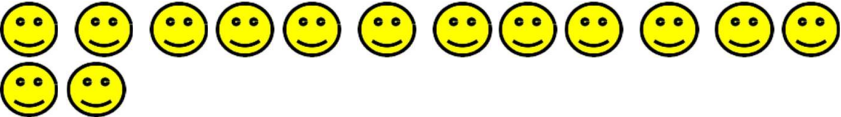
52. Here is the information about the vehicles used by students to come to school. (U- Easy)

Vehicles Name	Number of students
Bicycle	
Car	
School Bus	
Two wheeler	

- What number of students comes in a school bus.
- From which vehicle do the lowest number of students come to school?

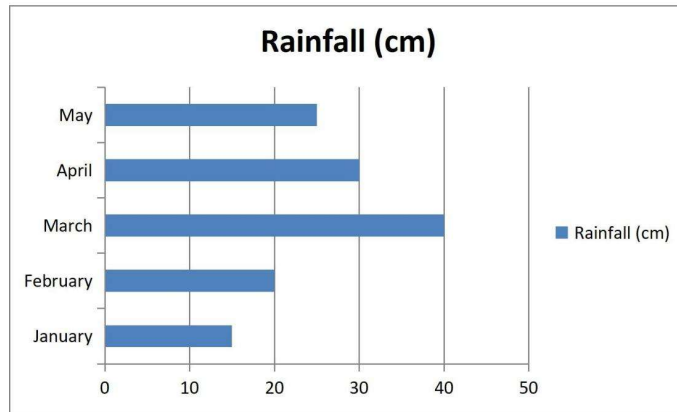
53. Scale :  = 100

(U-Easy)

Cow	
Horse	
Cat	
Dog	
Goat	

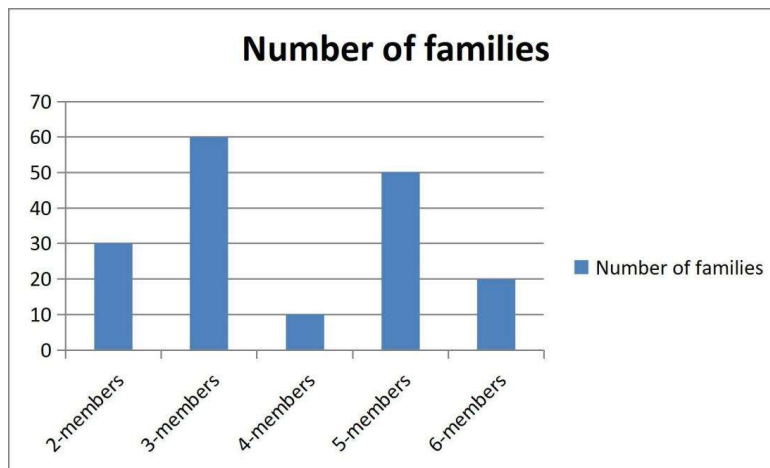
- What number of students like cat
- How many students like goat than horse?

54. The amount of rainfall in a forest area is represented in the below bar graph. Observe that and answer the given questions. (U- Average)



- What is the total rainfall in 5 months.
- Which month has the maximum rainfall?

55. Observe the given bar graph of number of each family member in a village. (K-Average)



- How many families have three members.
- How many families have the lowest number of members?

56. Manasa, Reeta, Pavan and Dhanush bought some books for ₹ 500, ₹ 800, ₹ 400, and ₹ 300 respectively. Represent this in a bar graph. (S-Average)

57. Kishan planted 4000 coconut plants in the month of January, 6000 plants in February, 2000 plants in March and 3000 plants in April. Represent this information in pictograph, (S-Average)

58. Prepare tally marks for the following data:

Apple, Mango, Apple, Banana, Mango, Apple.

(S-Average)

59. Observe the data and answer: 4, 5, 5, 6, 5, 4, 3

- a) Largest number
- b) Frequency of 5

(U-Easy)

60. Draw a pictograph for the
(Average)

Game	Students
Cricket	6
Football	4
Hockey	2

following data using ★ = 2 students:

61. Why is scale important in pictographs?

(S-Average)

62. Write any two advantages of bar graphs.

(A-Average)

IX. Represent the given data in mentioned graph.

$$7 \times 3 = 21$$

63. Here is the speed of some animals. Represent the given data in bar graph. (S-Difficult)

Animals	Dog	Lion	Zibra	Tiger	Cheetha
Speed(Km/h	20	60	30	70	80

64. This is the information about saplings planted by Shiva in his garden. Represent this in a pictograph.
(S-Difficult)

Types of fruits	Number of saplings
Clustered apple	150
Mango	100
Lemon	50
Orange	25

65. Prepare a frequency table for the following data:

Bike, Car, Bike, Bus, Bike, Car, Bicycle, Bus, Bike.

(S-Average)

66. The following data shows number of books borrowed:

Day	Books
Monday	5
Tuesday	8
Wednesday	3

a) On which day was the maximum books borrowed?

b) what is the Total number of books borrowed?

(Average)

67. Draw a bar graph for the following data.

(S-Average)

Fruit	Number
Mango	4
Apple	6
Orange	3
(Difficult)	

68. Explain why equal spacing is needed in a bar graph.

(U-Difficult)

69. A pictograph uses 1 symbol = 5 students.

If there are 25 students, how many symbols are needed? Explain.

(U- Difficult)

X. Solve the following problems.

$$7 \times 4 = 28$$

70. The marks scored by students are represented in pictograph. Prepare the table and bar graph for this

Scale : 100 Marks = 

(A-Average)

Students name	Marks Obtained
Savitha	
Mamatha	
Samanth	
Tejas	
Janani	

71. The different colors liked by 6th standard students are listed here. Observe and answer the following questions. (A-Average)

Red	Yellow	Green	White	Purple	Blue
Black	Orange	Red	Yellow	Yellow	Green
Yellow	Yellow	Blue	Blue	Purple	White
Blue	Yellow	Blue	White	Blue	Black
White	Black	Blue	Blue	Green	White

- Prepare frequency distribution table for the above data.
 - Which color do most of the student like? How many?
 - Name the color which is liked by lowest number of students? How many?
72. Observe the data of students' favourite sweets :

Sweet	Students
Jalebi	6
Barfi	3
Rasgulla	7
Gulab Jamun	9

Draw a bar graph using a suitable scale. (S-Difficult)

73. Prepare a pictograph for the following data using 1 symbol = 10 trees: (S-Average)

Tree	Numbers
Neem	20
Mango	30
Coconut	10
Peepal	40
(Average)	

74. The following data shows shoe the sizes of students:

4, 5, 6, 4, 5, 5, 3, 4, 6, 5

Answer the following:-

- Largest shoe size
- Smallest shoe size
- Frequency of 5
- Number of students with shoe size greater than 4

(A-Average)

75. Explain the steps involved in drawing a bar graph.

(U-Average)

76. Why can some infographics be misleading? Explain with one example. (A-Difficult)

XI. Solve the problems.

$6 \times 5 = 30$

77. Here is the information about the weight (Kg) of new born babies on the particular day in a hospital.

Observe and answer the following questions.

(A-Difficult)

2.4 2.9 2.7 2.8 2.5 3.1 2.8 2.9

2.5 3.0 2.5 2.6 2.0 2.1 2.2

- Decreasing order of these data.
- What is the maximum weight?
- What is the minimum weight?
- Find the range? (Max – Min)
- How many children were born on that particular day?

78. The following data shows the number of saplings planted during a week:

Day	Saplings
Monday	20
Tuesday	40
Wednesday	30
Thursday	40
Friday	50

Draw a bar graph and answer the following:-

a) Which day has maximum plantation?

b) What is the total number of saplings

(S-Difficult)

79. Prepare a frequency table and tally marks for the following transport data:

Bike, Car, Bike, Bicycle, Bus, Bike, Car, Bicycle, Scooter, Bike, Bus, Scooter. (S-Average)

80. A survey was conducted among students about free-time activities

Activity	Students
Playing	45
Reading	30
Watching TV	20
Music	10
Painting	15

Draw a bar graph using scale 1 unit = 5 students and answer:

a) Most preferred activity

b) Least preferred activity

(S-Difficult)

81. Explain the difference between pictograph and bar graph with examples. (U-Average)

82. Prepare a pictograph for the following data using 1 symbol = 5 dogs :

Village	Dogs
A	10
B	20
C	15
D	25

Answer the following: -

a) Which village has maximum dogs?

b) What is the Difference between Village B and Village C.

(S-Difficult)

Chapter – 5 Prime Time

LO's No	Learning Outcomes	Question Number
7	Identify and explain prime numbers, composite numbers, and co-prime numbers, write the given numbers as the product of prime factors	1,2,4,6 to 14,17 to 24, 27 to 31, 34,35,36, 43,45
8	Find factors and multiples of numbers and find the common multiples and common factors. Check the divisibility of given numbers.	3,5,15,16,25,26,32,33, 37 to 42,44,46 to 60

1. Weightage to Objectives

Sl.NO	Objectives	No. of questions	Marks	Percentage
1	Knowledge	12	23	20%
2	Understanding	18	34	30%
3	Application	18	34	30%
4	Skill	12	23	20%
Total		60	114	100%

2. Weightage To Difficulty Level

Sl.NO	difficulty level	No. of questions	Marks	Percentage
1	Easy	18	34	30%
2	Average	30	57	50%
3	Difficult	12	23	20%
Total		60	114	100%

Chapter – 5 Prime Time

I. Choose the correct answer from the given four alternatives.

$7 \times 1 = 7$

1. This number is not a factor of 66. (U-Average)
A. 3 B. 6 C. 11 D. 4
2. This number is a multiple of 14. (K-Average)
A. 28 B. 44 C. 80 D. 21
3. A number that perfectly divides 1305. (U-Average)
A. 13 B. 9 C. 5 D. 6
4. These number pairs are co-prime. (U-Easy)
A. 15 and 39 B. 17 and 69 C. 81 and 18 D. 24 and 87
5. 48 can be expressed as a product of prime factors. (U-Average)
A. $2 \times 2 \times 2 \times 2 \times 3 \times 5$ B. $3 \times 2 \times 5 \times 1$ C. $2 \times 2 \times 2 \times 2 \times 3$ D. $1 \times 2 \times 2 \times 2 \times 3$
6. Which of the following is a prime number? (K- Easy)
A. 21 B. 15 C. 17 D. 27
7. Which pair is a co-prime? (K- Average)
A. 12 and 18 B. 15 and 37 C. 24 and 36 D. 21 and 49

II. Fill in the blanks with suitable answers.

$8 \times 1 = 8$

8. Each number is the factor of _____ (K-Easy)
9. A number that is neither prime nor composite is _____ (K-Easy)
10. _____ is an even prime number. (K-Easy)
11. Numbers having only 1 as common factor are called _____ number. (K-Easy)
12. Smallest composite number is _____ (K-Easy)
13. The smallest prime number. (K-Easy)
14. A number having exactly two factors is called a _____ number. (K- Easy)
15. A number divisible by both 2 and 5 is divisible by _____. (U-Average)

III.

16. Match the following. (K-Average)

$$10 \times 1 = 10$$

- a. Divisible by 2 - Ends with either zero or 5
- b. Divisible by 10 - The last two digits must be divided
- c. Divisible by 5 - The last 3 digits must be divided
- d. Divisible by 4 - Must be end with zero
- e. Divisible by 8 - Must be an even number
- f. Prime number - Exactly two factors
- g. Composite number - Common factor is 1
- h. Co-prime numbers - More than two factors
- i. Divisible by 10 - Ends with 0
- j. Twin primes - Difference is 2

IV. State whether the following statements are true/false.

$$10 \times 1 = 10$$

- 17. Every number has 1 as a factor. (K-Easy)
- 18. The multiple of every number is the same number itself. (K-Easy)
- 19. A number has infinite multiples. (K-Easy)
- 20. A prime number has more than two factors. (K-Easy)
- 21. There are 11 composite numbers from 1 to 20. . (U-Easy)
- 22. 2 is the only even prime number. (K- Easy)
- 23. Every odd number is prime. (U-Easy)
- 24. Co-prime numbers have no common factor except 1. (K-Average)
- 25. A number ending 5 is divisible by 10. (A- Average)
- 26. 64 is divisible by 8. with (U- Average)

V. Define the following.

$$5 \times 1 = 5$$

- 27. Prime numbers (K-Difficult)
- 28. Composite numbers (K-Difficult)
- 29. Twin primes (K-Average)
- 30. Co-prime (K-Average)
- 31. Prime factorization (K-Difficult)

VI. Solve the following questions.

$$7 \times 1 = 7$$

- 32. Which is the largest three digit number that is divisible by 5? (U-Difficult)
- 33. Express 65 as a product of prime factors. (U-Average)
- 34. Give an example for twin primes. (K-Average)
- 35. What are co-prime numbers? (K-Average)

36. Which is the largest three digit palindrome number that is divisible by 2? (U-Difficult)
 37. Find the prime factors of 21. (U-Average)
 38. Is 96 divisible by 4? (A-Difficult)

VII. Solve the following problem.

$$7 \times 2 = 14$$

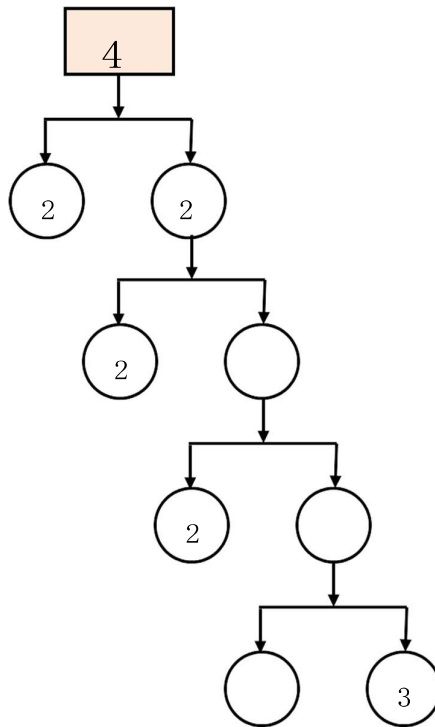
39. Express 200 as a product of prime factors. (U-Average)
 40. Write the first 5 multiples of 2 and 3 and find the common multiples. (U-Difficult)
 41. Find the common factors of 12 and 15. (U-Average)
 42. Find all the multiples of 5 that lie between 100 and 200. (U-Average)
 43. What is a perfect number? Give an example for a perfect number. (K-Difficult)
 44. Find whether 18 and 35 are co-prime numbers. (A-Difficult)
 45. Write all twin prime numbers between 1 and 20 (U-Average)

VIII. Solve the problems.

$$5 \times 3 = 15$$

46. Check whether 45 and 108 are co-primes (U-Difficult)
 47. Fill the following prime factorization tree with suitable numbers.

(U-Average)



$$48 = \square \times \square \times \square \times \square \times \square$$

48. Check by divisibility rule whether the following numbers are divisible by 8. (A-Difficult)

a) 1408

b) 3935

49. Find the prime factorization of 105.

(U-Difficult)

50. Check whether 225 is divisible by 27 using prime factorization,

(A-Difficult)

IX. Solve the problems.

$$7 \times 4 = 28$$

51. Check whether the numbers in the table using the rules of divisibility and mark (✓), If they are not divisible put (×) mark. (A-Difficult)

	8	2	4	5	10
8560					
2024					
572					
105					

52. Fill the grid below with prime numbers only.

(K-Difficult)

(Rule : The product of each row is the number to the right of the row and product of each column is the number at the bottom of the column)

			30
			70
			105
42	105	50	

53. Is 180 divisible by 24? Find the prime factors of both the numbers. (U-Difficult)

54. Find the sum of the first 20 prime numbers. (U-Average)

55. What are twin prime numbers? Give example for any five twin primes. (K-Average)

56. Find the smallest number having:

a) Three different prime factors

b) Four different prime factors

(S- Difficult)

57. Explain the divisibility rules of:

a) 4

b) 8

with examples.

(A-Difficult)

X. Solve the problems.

$$1 \times 5 = 5$$

58. Find the prime factors of 1,26,000.

(U-Difficult)

59. Find the prime factors of the following numbers:

(U-Difficult)

a) 320

b) 243

c) 141

d) 1000

e) 729

60. Observe the following numbers

(A-Difficult)

5600, 2352, 6000, 7762, 2160

Answer the following:

a) Which numbers are divisible by 10?

b) Which numbers are divisible by 8?

c) Which numbers are divisible by all of 2, 4, 5, 8 and 10?

Chapter – 6 Perimeter and Area

LO's No	Learning Outcomes	Question Number
20	Explain the meaning of perimeter and area of closed figures and find area and perimeter using practical formulas. Use appropriate units for perimeter and area	1,2,7,9, 11 to 18, 26,30,32,35
21	Calculate area and perimeter of different shapes in daily life situations (rectangle, square, triangle), solve area maze puzzles	3,4,5,6,8,10, 19 to 25, 27,28,29,31,33,34,36

1. Weightage To Objectives

Sl.N O	Objectives	No. of questions	Marks	Percentage
1	Knowledge	09	15	20%
2	Understanding	14	22	30%
3	Application	08	22	30 %
4	Skill	05	14	20%
Total		36	73	100 %

2. Weightage To Difficulty Level

Sl.NO	Difficulty Level	No. of questions	Marks	Percentage
1	Easy	15	22	30%
2	Average	13	26	36 %
3	Difficult	08	25	34%
Total		36	73	100%

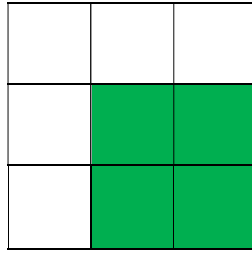
Chapter – 6 Perimeter and Area

I. Choose the correct answer from the given four alternatives.

$$7 \times 1 = 7$$

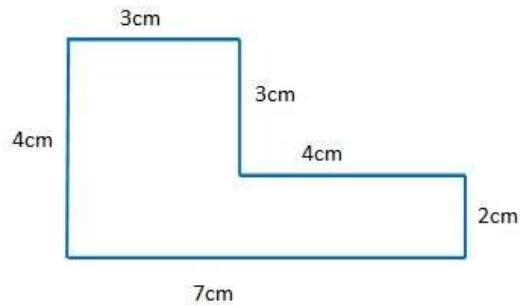
1. The perimeter of the shaded region if the length of each square is 1 cm

(U-Easy)



- A. 12 cm B. 8 cm
C. 9 cm² D. 12 cm²
2. The perimeter of the given compound is

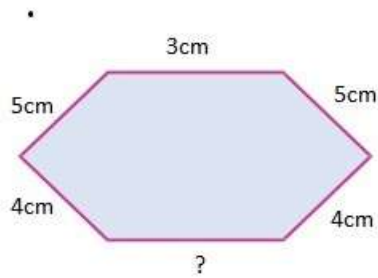
(U- Easy)



- A. 22 cm B. 20 cm²
C. 10 cm D. 14 cm
3. The area of the square whose side is 10 cm
- A. 100 cm² B. 10 sq cm
C. 40 sq cm D. 50 sq cm
4. The perimeter of the given shape is 24 cm. Then the measurement of the missing side.

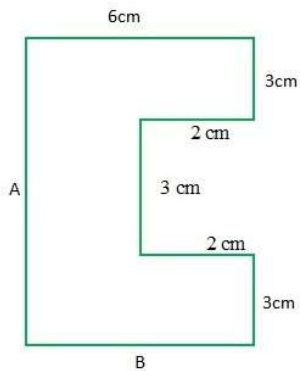
(U- Easy)

(U-Easy)



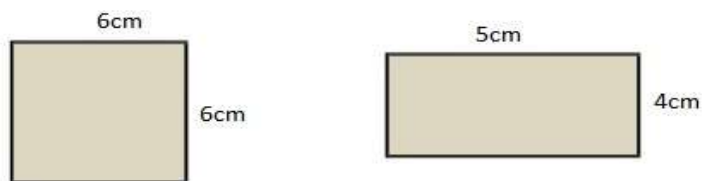
- A. 3 cm B. 4 cm
C. 6 cm D. 5 cm

5. Manu draws the picture and tried to write the measurement of each side. But she could not for the sides A and B side. Can you help her by finding it? (U- Skill)

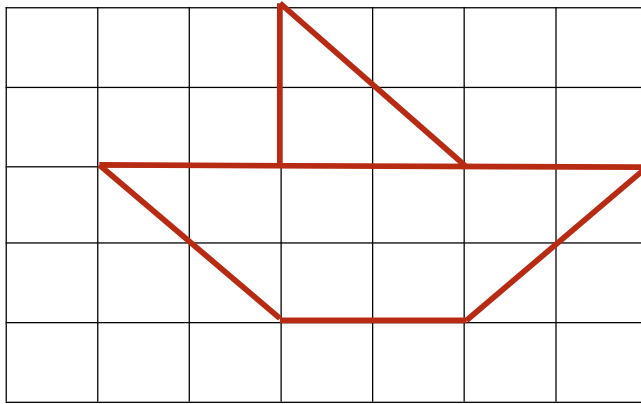


- A. 7 cm and 5 cm B. 13 cm and 6 cm
C. 10 cm and 6 cm D. 6 cm and 13 cm

6. The figure that has smaller perimeter. (K- Easy)



- A. Fig -1 B. Fig - 2
C. Both are equal D. Both are not equal
7. If each square represents 1 cm^2 , find the area of the figure by counting squares. (A-Average)



- A. 10 cm^2 B. 6 cm^2 C. 8 cm^2 D. 12 cm

II. Fill up the blanks with suitable answers.

$5 \times 1 = 5$

8. _____ is the perimeter of right-angled triangle whose sides are 4 cm, 5 cm and hypotenuse is 6 cm. (U-Easy)
9. The area of the square plot of side 7 m is _____. (U- Skill)
10. If the perimeter of a square is 64 cm. Then its area is _____. (U- Average)
11. Two sides of the triangle are 14 cm and 16 cm. It's perimeter is 36 cm. Then the third side is _____. (U-Average)
12. The length of the rectangular field is 12 cm and breadth is 8 cm. Its perimeter is _____. (U- Average)

III.

13. Match the following.

(K-Easy)

$5 \times 1 = 5$

- | | | |
|-------------------------------|---|---|
| a. Perimeter of the rectangle | - | $4 \times \text{length}$ |
| b. Perimeter of the square | - | $\text{length} \times \text{breadth}$ |
| c. Area of the rectangle | - | $\frac{1}{2} \times \text{base} \times \text{height}$ |
| d. Area of the square | - | $2 (\text{length} + \text{breadth})$ |
| e. Area of the triangle | - | $\text{length} \times \text{length}$ |

IV. Define the following.

$2 \times 1 = 2$

14. Define Perimeter. (K- Average)
15. Define Area. (K- Average)
16. Write the formula to find the area of square (K-Easy)
17. Write the formula to find the area of rectangle. (K- Easy)

V. Solve the following sums.

$7 \times 2 = 14$

18. Find the perimeter and area of the square whose side is 3 cm? (U-Skill)
19. Find the perimeter and area of the rectangle whose length is 2 cm and breadth is 1 cm? (U-Skill)
20. If the area of a rectangle is 30 cm^2 and length is 6 cm. Find the breadth? (U- Average)
21. A man runs once around a square field of side 13 cm. What is the distance covered by him? (A-Difficult)
22. The area of a rectangular garden of 50 m length is 300 sq m. Find the width of the garden? (A-Difficult)
23. If the area of a square is 64 sq cm. Find the length of each side. (U- Average)
24. Two sides of the triangle are 12 cm and 14 cm. If the perimeter of it is 36cm. Find the third side? (U-Average)
25. Find the perimeter of an isosceles triangle with equal sides 8.5 cm each and third side 7 cm. (U-Easy)

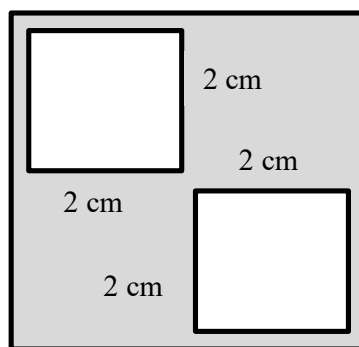
VI. Solve the following problems.

$8 \times 3 = 24$

26. Read the table and write the missing measurements. (U- Average)

Length	Breadth	Area of the rectangle
15 cm	10 cm	
11m		110 sq cm
	20 cm	1000 sq cm

27. A piece of wire is 32 cm long. What will be the length of each side, if it is used for a square? (A- Difficult)
28. Find the area of the shaded reason in the given figure. (A- Difficult)



29. The perimeter of a square and a rectangle is the same. If the side of the square is 15 cm and one side of the rectangle is 18 cm, find the area of the rectangle. (A- Difficult)
30. Find the missing terms; (U-Average)
- a. perimeter of a rectangle = 14 cm ; breadth = 2 cm , length = ?

- b. perimeter of a square 20 cm; length of a side = ?
 c. perimeter of a rectangle = 12 m ; length = 3m ; Breadth = ?

31. A rectangle having side lengths 5 cm and 3 cm is made using a piece of wire. If the wire is straightened and then bent to form a square, what will be the length of a side of the square?
 (A-Skill)
32. Draw a rectangle of size 12 unit $\times$ 8 units. Draw another rectangle inside it without touching the outer rectangle that occupies exactly half the area.
 (S- Average)
33. A farmer has a rectangular field with length 230m & breadth 160m. He wants to fence it with 3 rounds of rope what is the total length of rope needed?
 (U- Skill)

VII. Solve the following problems.

$$3 \times 4 = 12$$

34. What would be the cost of fencing of the rectangular park whose length is 120m and breadth is 130m, if the fence cost ₹ 30 per meter?
 (A- Difficult)
35. Manu has a rectangular field having a length 150m and breadth 200m. She want to fence it 2 times with the wire. What is total length of wire needed?
 (A-Difficult)
36. Four flower beds having sides 2m long & 1m wide are dug at the four corners of a garden that is 15m long and 12m wide. How much area is now available for laying down a lawn?
 (A-Difficult)

Chapter – 7 Fractions

LO's No	Learning Outcomes	Question Number
11	Define fractions and identify numerator and denominator. Classify different types of fractions. Represent fractions on a number line.	1,2,3,6 to 28, 30 to 36,39,44,48
12	Simplify fractions and arrange fractions in ascending and descending order and identify equivalent fractions.	4,5,29,40,41, 42,43,45
13	Perform and explain addition and subtraction of fractions and apply to real life situations	47,49,50,51,52, 53,54,55,56,57
25	Appreciate the contribution of Brahmagupta for adding and subtracting integers	37,38,46

1. Weightage To Objectives

Sl.NO	Objectives	No. of questions	Marks	Percentage
1	Knowledge	21	21	20%
2	Understanding	26	44	44%
3	Application	08	30	30%
4	Skill	02	05	05%
Total		57	100	100 %

2. Weightage To Difficulty Level

Sl.NO	difficulty level	No. of questions	Marks	Percentage
1	Easy	31	40	40 %
2	Average	18	30	30 %
3	Difficult	08	30	20 %
Total		57	100	100%

Chapter – 7 Fractions

I. Choose the correct answer from the given four alternatives.

$5 \times 1 = 5$

1. The smaller fraction among these.

(K-Average)

A. $\frac{5}{4}$

B. $\frac{5}{3}$

C. $\frac{5}{6}$

D. $\frac{5}{2}$

2. The mixed fraction of $\frac{16}{9}$.

(K-Easy)

A. $2\frac{7}{9}$

B. $1\frac{5}{9}$

C. $1\frac{7}{9}$

D. $2\frac{5}{9}$

3. The fraction that represents 45 minutes in a hour

(U-Easy)

A. None of these

B. $\frac{3}{4}$

C. $\frac{1}{4}$

D. $\frac{1}{2}$

4. $\frac{17}{101}$ $\frac{12}{101}$

(U- Easy)

A. >

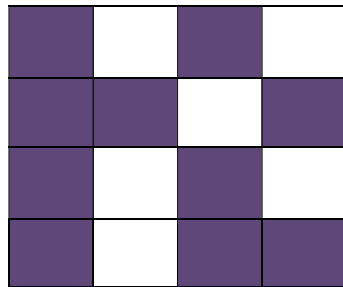
B. <

C. =

D. None of these.

5. The fraction representing the shaded region in the given square.

(U- Easy)



A. $\frac{4}{16}$

B. $\frac{9}{16}$

C. $\frac{5}{16}$

D. $\frac{10}{16}$

II. State true or false.

$7 \times 1 = 7$

6. In $\frac{3}{7}$, 3 is the part of whole.

(K-Easy)

7. On a number line $\frac{2}{7}$ is to the right of zero

(K-Easy)

8. $\frac{2}{5}$ is smaller than $\frac{1}{5}$.

(U-Easy)

9. $\frac{28}{45}$ and $\frac{3}{5}$ represent equivalent fractions.

(K-Average)

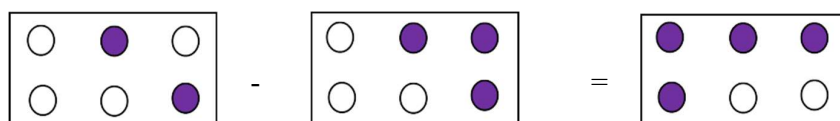
10.



(K-Average)

11.

(K- Skill)



12.



III. Define the following.

(K- Average)

$$5 \times 1 = 5$$

13. Fraction

(K-Easy)

14. Proper Fraction

(K-Easy)

15. Improper Fraction

(K-Easy)

16. Mixed Fraction

(K-Easy)

17. Equivalent Fraction

(K-Easy)

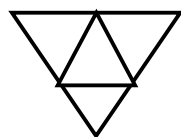
IV. Shade the parts of the figures according to the given fraction.

$$4 \times 1 = 4$$

(K-Easy)

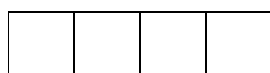
18.

$$\frac{1}{4}$$

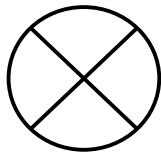


19.

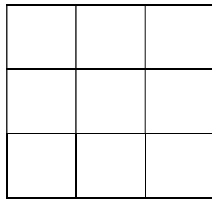
$$\frac{1}{3}$$



20. $\frac{3}{4}$



21. $\frac{4}{9}$



V. Write the following fractions as mixed fraction. (U- Easy) $3 \times 1 = 3$

22. $\frac{8}{3}$

23. $\frac{12}{7}$

24. $\frac{25}{9}$

VI. Express the following mixed fractions as improper fractions. (U- Easy) $4 \times 1 = 4$

25. $1\frac{3}{5}$

26. $6\frac{1}{8}$

27. $3\frac{1}{7}$

28. $1\frac{1}{4}$

VII. Answer the following questions. $3 \times 1 = 3$

29. Five balls together weigh 1 kg. If they are roughly the same weight, then what is the weight of each ball? (U-Average)

30. Write the correct number in the empty box $\frac{42}{84} = \frac{6}{\quad}$ (U-Average)

31. Identify the proper and improper fractions $\frac{6}{5}, \frac{2}{7}, \frac{1}{2}, \frac{3}{4}, \frac{11}{5}$. (K-Easy)

VIII. Insert ‘> or <’ to make each of the following true.

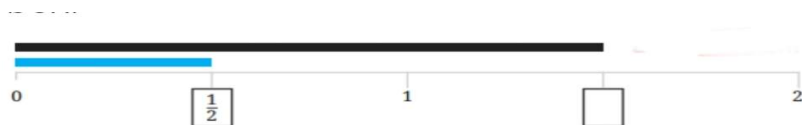
$3 \times 1 = 3$

32. $\frac{6}{7}$, , $\frac{5}{7}$ (K-Easy)
33. $\frac{10}{21}$, , $\frac{10}{12}$ (K-Average)
34. $\frac{3}{7}$, , $\frac{3}{8}$ (K-Average)

IX. Solve the following problems.

$9 \times 2 = 18$

35. Find the number of whole units in each of the following fractions (K-Easy)
- a. $\frac{9}{5}$ b. $\frac{7}{3}$
36. Check whether the fractions $\frac{5}{12}$ and $\frac{30}{84}$ are equivalent (U-Skill)
37. Add the following fractions by using Brahmagupta’s method. (U-Skill)
- a. $\frac{1}{3}$ and $\frac{3}{5}$ b. $\frac{5}{6}$ and $\frac{1}{2}$
38. Subtract the following fraction by using Brahmagupta’s method. (U-Skill)
- a. $\frac{3}{5} - \frac{1}{2}$ b. $\frac{2}{3} - \frac{1}{7}$
39. Represent $3\frac{2}{5}$ on a number line. (S - Easy)
40. Write two equivalent fractions for $\frac{1}{3}$. (U-Easy)
41. What is the length of the blue line and black lines Shown below? The distance between 0 and 1 is 1 unit and it is divided into two equal parts. The length of each part is $\frac{1}{2}$. So the blue line is $\frac{1}{2}$ units long. Write the fraction that gives the length of the black line in the box. (U, Average)



42. Write four equivalent fractions for $\frac{2}{6}$ (U, Average)
43. Are $\frac{3}{6}$, $\frac{4}{8}$, $\frac{5}{10}$ equivalent fractions? Why? (U, Average)

X. Solve the problems.

$8 \times 3 = 24$

44. Reduce the fraction $40 / 80$ to its lowest term. (U-Easy)

45. Arrange $\frac{5}{6}$, $\frac{1}{2}$, $\frac{2}{3}$ and $\frac{8}{9}$ in X ascending order. (A-Easy)
46. Add the following fractions using Brahmagupta's method. (U-Average)
- $$\frac{3}{4} + \frac{1}{3} + \frac{2}{5}$$
47. Rahul takes $\frac{11}{7}$ hours to finish his homework, while Naman takes $\frac{15}{8}$. Who takes more time and how much? (U-Skill)
48. On a number line, draw lines of lengths $\frac{1}{10}$, $\frac{3}{10}$ and $\frac{5}{10}$ (S-Easy)
49. Find the sum of $1\frac{2}{3}$ and $3\frac{2}{5}$ (U-Average)
50. Rahim mixes $\frac{2}{3}$ liters of yellow paint with $\frac{3}{4}$ litres of blue paint to make green paint, what is the volume of green paint he has made? (U-Skill)
51. Jeevika takes $\frac{10}{3}$ minutes to take a complete round of the park and her friend Namit takes $\frac{13}{4}$ minutes to do the same, who takes less time and by how much.? (A-Difficult)

XI. Solve the problems.

$$6 \times 4 = 24$$

52. Keshav painted $\frac{2}{3}$ of the wall space in his room. His father Dharam helped and painted $\frac{1}{5}$ of the wall space. How much did they paint together? What part of the whole space is left unpainted? (A-Difficult)
53. Three pizzas are shared equally by four children. Show the division in the picture and write a fraction for how much each child gets. Also, write the corresponding division facts, addition facts and multiplication facts. (A-Difficult)



54. Simran painted $\frac{2}{3}$ of the wall space in her room. Her brother Rahul helped and painted $\frac{1}{5}$ of the wall space. How much did they paint together? What part of the whole space is left unpainted? (A-Difficult)
55. A piece of wire $\frac{7}{8}$ metres long is broken into 2 pieces. One piece is $\frac{1}{4}$ metres long. How long is the other piece? (A-Difficult)
56. Geeta bought $\frac{2}{5}$ meter of lace and Shamim bought $\frac{3}{4}$ meter of the same lace to put a complete border on a table cloth whose perimeter is 1 meter long. Find the total length of the Lace they both have bought. Will the Lace will be sufficient to cover the whole border. (A-Difficult)
57. Draw a picture to show how much each child gets when 2 Rotis are shared equally by 4 children.

Also, write the corresponding division fact, addition fact and multiplication facts (U-Skill)

Chapter-8

Playing with constructions

LO's No	Learning Outcomes	Question Number
17	Construct circles and arcs using geometric instruments when the radius is given.	2,8,10,14,22,25,32,38
18	Construct squares, rectangles, and other geometric figures according to given data using compass and ruler.	1,4,5,6,7,9,11,13,15, 17 to 21, 24,26,27,28,30,31,34,35,36, 37,39,40,41,42,43
19	Apply these constructions in real-life situations to draw various figures.	3,12,16,23,29,33,44,45

1. Weightage To Objectives

Sl.NO	Objectives	No. of questions	Marks	Percentage
1	Knowledge	15	17	20%
2	Understanding	10	13	17%
3	Application	03	10	13%
4	Skill	17	43	50%
Total		45	83	100 %

2. Weightage To Difficulty Level

Sl.NO	difficulty level	No. of questions	Marks	Percentage
1	Easy	19	25	30 %
2	Average	20	41	50 %
3	Difficult	06	17	20 %
Total		45	83	100%

Chapter-8

Playing with constructions

I. Choose the correct answer from the given four alternatives.

9 × 1 = 9

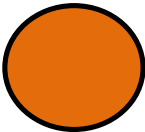
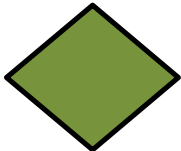
1. Number of equal sides in a square. (K- Easy)
A. 4 B. 2 C. 3 D. 5
2. All the points on a circle are at the same distance from its (K- Easy)
A. radius B. center C. diameter D. circumference
3. Let AB be a line of length 7cm and M is the midpoint of AB. What is the distance of M from A? (U- Easy)
A. 7cm B. 14cm C. 49cm D. 3.5cm
4. A rectangle ABCD can also be written as (K- Easy)
A. ACDB B. DABC C. CABA D. BDCA
5. The measure of each angle in a square is (K- Easy)
A. 45^0 B. 60^0 C. 90^0 D. 120^0
6. While drawing a rectangle, which of the following is true about its diagonals? (U- average)
A. they are always parallel B. they bisect each other at 90^0 C. they are equal in length D. none of these
7. The maximum number of diagonals that can be drawn in a rectangle _____. (K- easy)
A. 3 B. 2 C. 1 D. infinite
8. A figure made by only half circle is called ____ (U-average)
A. line B. rectangle C. wavy wave D. square
9. What is the measure of each angle in a rectangle? (K-Easy)
A. 45^0 B. 60^0 C. 90^0 D. 120^0

II. Fill up the blanks with suitable answers.**6 × 1 = 6**

10. An instrument used to draw a circle is _____ (K-Easy)
11. The number of dimensions a rectangle has (K-Easy)
12. To draw a perpendicular line through a point on a line segment, you would typically use a _____.
(K-Easy)
13. The sum of all angles in a rectangle is ____degree. (U-Easy)
14. The distance from the centre of a circle to any point on its circumference is called _____.
(K-Easy)
15. Rotating a _____ and _____ does not change their length and angles (U-average)

III. Match the following.**6 × 1 = 6****16.**

(A- Easy)

a		1. Ruler
b		2. Rhombus
c.		3. Square
d.		4. Rectangle
e.		5. compass
f.		6. Circle

IV. State true or false.

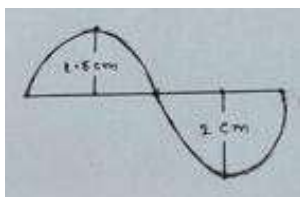
$5 \times 1 = 5$

17. The diagonals of a rectangle are always equal. (K-Easy)
18. All the sides of a rectangle are of equal length. (K-Easy)
19. A rotated square is still a square as long as all sides remain equal and angle remain 90° (U-Easy)
20. The two diagonals of a rectangle divide the diagonals into 2 equal parts. (U-Easy)
21. A square has 3 diagonals. (K-Easy)

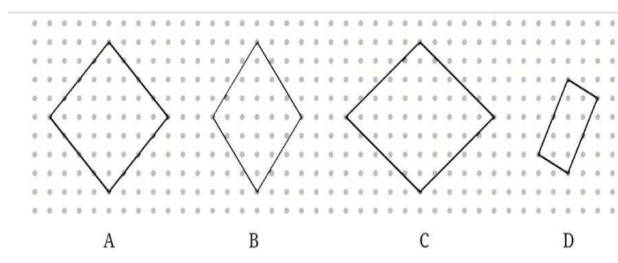
V. Solve the following :

$17 \times 2 = 34$

22. Draw three circles with common centre and radius 3cm, 4cm and 5cm. (S -Easy)
23. Name the main instruments used for construction in geometry? (K- Easy)
24. How many right angles does a rectangle have? (U-Easy)
25. What is the shape of the curve obtained when all points are at equal distance from a centre? (U-Easy)
26. Write one similar property of both squares and rectangles? (K-Easy)
27. Draw a square with a side length of 5cm using a compass and ruler. (S-Easy)
28. Construct a rectangle ABCD in which side AB = 3cm and diagonal AC = 5cm. (S-Average)
29. Construct a diagram as given below. (S-Average)



30. Give the length of the sides of a rectangle that cannot be divided into. (A- Difficult)
i. Two identical squares
ii. Three identical squares
31. Construct a rectangle with one of its sides is 3cm and the length of diagonal is 7cm. (S-Average)
32. With the same centre as O, draw three circles of radii 3cm, 5cm, & 6cm. State whether these circles are concentric (A- Average)
33. Draw a central line of a any length & to draw the wave on it. (S-Easy)
34. Draw a rectangle & four squares configuration on a dot paper. (S- Average)
35. Identify if there are any squares in this collection. Use measurement if needed. (U- average)



36. Construct a rectangle with one of its side is 4cm and the diagonal is 8cm. (S-average)
37. Construct a rectangle with one of its side is 3cm and the diagonal is 7cm. (S-average)
38. Construct a circle of radius 7cm with point D as the centre. (S-Easy)

VI. Construct the following diagrams.

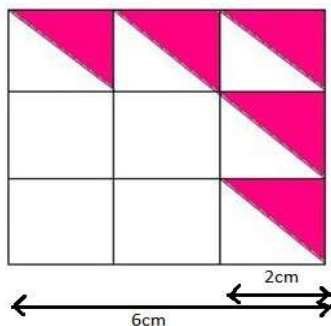
$$3 \times 5 = 15$$

39. Construct a rectangle with sides 4cm and 6cm. Verify if the diagonals are equal. (S-Average)
40. Construct a 4 sided figure where all sides are equal, but not a square. What is the shape called?
(S -Average)
41. Construct a rectangle having adjacent sides of 6cm and 4cm and find its area. (S- Average)
42. Construct a rectangle in which one of the diagonals divides the opposite angles into 50° & 40° .
(S- Difficult)
43. Construct a rectangle in which one of the diagonals divides the opposite angles into 45° & 45° . What do you observe about the sides.
(S-Difficult)

VII. Solve the following sums.

$$4 \times 2 = 8$$

44. Draw a diagram of 3“falling squares” of sides 2cm, 4cm and 5cm, so that one diagram of each square are on the same line.
(SKILL- Difficult)
45. Draw a diagram as shown below. The side of outer square is 6cm and side of each small square is 2cm.
(SKILL-Difficult)



Chapter – 9 Symmetry

LO's No	Learning Outcomes	Question Number
27	Identify (triangle, rectangle, square, circle, etc.) symmetrical figures in various shapes	6,8,10,11,15,19,20,27, 36 to 42, 45,46,48,49,61,70,72,73
28	Determine the number and types of lines of symmetry, angles of symmetry, and angles of rotation.	1,4,5,7,9,13,14,16,17,22,24,26, 28,29,32,34,35,44,47,53,54, 55 to 60,62,63,67,68,74
29	Appreciate the connections and integration of mathematics with other subjects.	2,3,12,18,21,23,25,30,31,33, 43,50,51,52,64,65,66,69,71

1. Weightage To Objectives

Sl.NO	Objectives	No. of questions	Marks	Percentage
1	Knowledge	21	24	16%
2	Understanding	28	47	36%
3	Application	12	30	24%
4	Skill	13	30	24%
Total		74	131	100%

2. Weightage To Difficulty Level

Sl.NO	difficulty level	No. of questions	Marks	Percentage
1	Easy	21	35	27%
2	Average	42	71	54%
3	Difficult	11	25	19%
Total		74	131	100%

Chapter – 9 Symmetry

I. Choose the correct answer from the given four alternatives.

$7 \times 1 = 7$

1. Number of lines of symmetry in a rhombus.

(K-Average)

A. 1 B. 2 C. 3 D. 4

2. The number of lines of symmetry for the letter



(K-Easy)

A. 1 B. Infinite C. 4 D. 6

- 3.



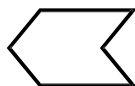
The line of symmetry of the figure is

(U-Easy)

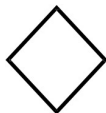
A. Vertical B. Horizontal C. Both D. None

4. In the following figure which figure has more than one line of symmetry. (S-Average)

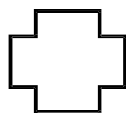
A



B



C



D



A. a and b B. a , b and c C. a , b , c and d D. b and c

5. The number of lines of symmetry in a regular hexagon.

(K-Average)

A. 3 B. 6 C. 4 D. 12

6. The figure with diagonals as its lines of symmetry.

(K-Average)

A. square B. parallelogram C. rectangle D. regular pentagon

7. Among these which shape has 90° angle of rotation.

(U-Easy)

A. Rectangle B. Square C. Equilateral triangle D. parallelogram

II. Fill in the blanks.

$18 \times 1 = 18$

8. A line that cuts a figure into two parts that exactly overlap when folded along that line is called _____

(K-Easy)

9. The number of symmetrical lines in square _____

(K-Easy)

10. The symmetrical lines of rhombus are their _____. (K- Average)
11. The triangle that has 3 symmetrical lines _____. (K-Easy)
12. The number of symmetrical lines in letter 'O' _____. (K-Average)
13. The number of lines of symmetry in a regular hexagon is. _____ (K-Average)
14. The rotational symmetry of any figure is _____. (A-Average)
15. A quadrilateral which has rotational symmetry but no reflection symmetry is _____. (K-Average)
16. If a figure has minimum 60° of angle of rotational symmetry then it has _____ number of rotational symmetric angles in this. (A-Average)

17. The number of angles of symmetry of the figure is _____. (S-Difficult)



18. The number of lines of symmetry in letter 'N' are _____. (U-Easy)
19. _____ line divides a figure into exactly two halves. (K-Average)

20. The _____ angle of rotation in this figure is _____. (S-Average)



21. **B** And **X** In these two letters _____ letter has two order of rotational symmetry. (S-Easy)

22. The angle of rotational symmetry of a regular pentagon is _____. (K-Easy)

23. _____ The order of rotational symmetry of the figure is _____. (U-Difficult)



24. A rectangle will look exactly the same as the original rectangle if you rotate it _____ degrees around the centre. (U-Average)

25. The angle of rotational symmetry of letter **H** is _____. (A- Easy)

III. Match the shapes to its number of lines of symmetry.

$$5 \times 1 = 5$$

26.

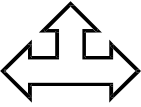
(U-Average)

- | | | |
|-----------------------|---|------------------------|
| a .Square | - | Zero lines of symmetry |
| b .Parallelogram | - | six lines of symmetry |
| c. Isosceles triangle | - | Four lines of symmetry |
| d Rectangle | - | one lines of symmetry |
| e Hexagon | - | Two lines of symmetry |

IV. Say true or false.

$$9 \times 1 = 9$$

27. A side of any shape does not divide the figure into equal parts. (U-Easy)
28. A circle has only one line of symmetry. (K-Easy)
29. Every figure will have 360^0 as an angle of symmetry. (K-Easy)
30. The order of rotational symmetry in a rhombus is 1. (U-Average)
31. The order of rotational symmetry in a letter 'Z' is 1. (U-Easy)
32. The angle of rotational symmetry of a rectangle is 90^0 . (U-Easy)

33.  This figure has more than one angle of symmetry. (U-Difficult)
34. The order of rotational symmetry of an isosceles triangle is two. (U-Average)
35. The angle of rotational symmetry of a regular octagon is _____. (U-Average)

V. Define the following.

$$4 \times 1 = 4$$

36. Symmetrical figures (K-Average)
37. Line (axis) of symmetry (K-Easy)
38. Centre of rotation (K-Easy)
39. Angle of symmetry (K-Average)

VI. Answer the following questions.

$$6 \times 1 = 6$$

40. How many lines of symmetry does a kite has? (U-Easy)
41. Name any geometric figure which has no line of symmetry. (U-Easy)
42. Which figure is symmetrical about its diameters? (K-Average)
43. How many lines of symmetry does the letter "M " have? (U-Easy)
44. What is the order of rotational symmetry of a semicircle? (U-Average)
45. Name any figure which has rotational symmetry but does not have line of symmetry.

(A-Average)

VII. Solve the below problems.

15 × 2 = 30

46. What is a line of symmetry? (K-Easy)

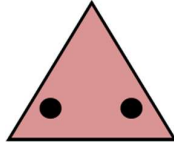
47. Write the number of the lines of symmetry for the following figures. (K-Easy)

1). Square

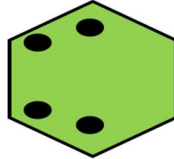
2). Rhombus

48. Draw the lines of symmetry for the following figure. (S-Average)

1)

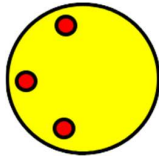


2).

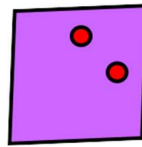


49. Draw lines of symmetry for the given figures and mark the missing holes. (S-Difficult)

1)



2)



50. Write any four letters of English alphabet which do not have the lines of symmetry.

(U-Easy)

51. Write any four letters in English alphabet which have horizontal lines of symmetry

(U-Average)

52. Write any four letters in English alphabet which have vertical lines of symmetry.

(A-Average)

53. Write the number of lines of symmetry for the following letters. (A-Easy)

a) **I**

b) **M**

54. Draw the rough figures for the following. (S-Difficult)

a) The triangle which has at least two lines of symmetry and two order of rotational symmetry.

b) The quadrilateral which has rotational symmetry but no reflection symmetry.

55. Write the order of rotational symmetry for the following figures. (K-Average)

1). Rhombus

2). Equilateral triangle.

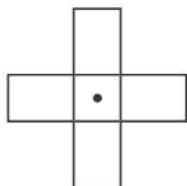
56. Write the angle of symmetry and order for the following figures. (U-Average)

1). Parallelogram

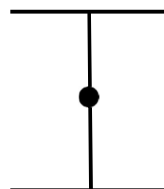
2). Regular pentagon

57. Write the angle of symmetry for the following figures. (U-Difficult)

a)



b)



58. Find the order of rotational symmetry for the following shapes with given angle of rotation.
(A-Average)

a) 90°

b) 120°

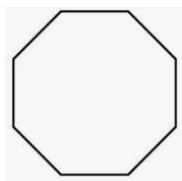
59. Find the angle of rotation of the following shapes with given order of rotational symmetry.
(A-Average)

a) 3

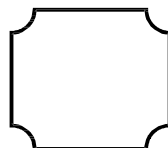
b) 5

60. Write the number of lines of symmetry and order of rotation of the following figures
(S-Average)

1)



2)



VIII. Solve the following problems.

$4 \times 3 = 12$

61. Draw and name any 3 shapes that have only one line of symmetry. (S-Difficult)

62. How many lines of symmetry does a rectangle have? Draw the line of symmetry. (U-Average)

63. Draw a line of symmetry for the following shapes. (S-Average)

a) An equilateral triangle

b) A rectangle

c) A square

64. State whether the following letters have a line of symmetry. If yes, draw then. (A-Average).

a) B

b) E

c) N

VIII. Solve the problems.

$10 \times 4 = 40$

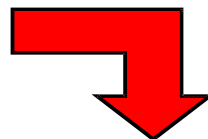
65. a).



b)



c)



d)



Identify the figure which has the following properties.

(A-Difficult)

- Lines symmetry
- Both lines of symmetry and rotational symmetry.
- Only rotational symmetry.
- Neither line of symmetry nor rotational symmetry.

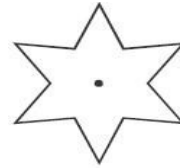
66. Write the letters of English alphabet which have two or more than two lines of symmetry.

(U-Average)

67. According to the figure,

(U-Average)

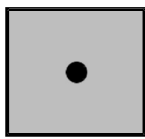
- i. The number of lines of symmetry
- ii. Angle of rotational symmetry.
- iii. Order of rotational symmetry.



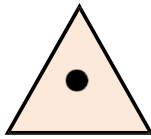
68. Write the angle of rotational symmetry of the figure.

(A-Difficult)

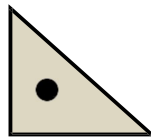
a)



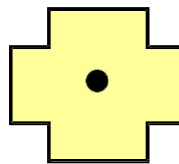
b)



c)



d)

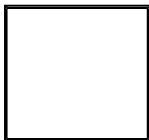


69. Write any four letters of English alphabet which have horizontal lines of symmetry and draw line of symmetry for each letter.

(S-Average)

70. Draw all possible lines of symmetry for the following figures.

(A-Easy)



71. Write the number of lines of symmetry for the following letters. (U-Average)

a)



b)



c)

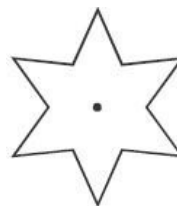
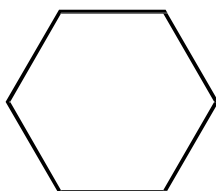


d)



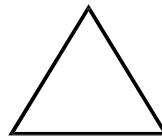
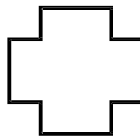
72. Draw the lines of symmetry for the following figures.

(U-Average)



73. Draw the lines of symmetry for the following figures.

(S-Easy)



74. Write the name of any four shapes which have more than two order of rotational symmetry.

(S-Difficult)

Chapter-10 The Other Side of Zero

LO's No	Learning Outcomes	Question Number
9	Identify and Compare negative numbers, positive numbers, and zero; represent them on number line.	2,3,4,5,6,9,11,12,13, 15,17,18,19,20,21, 22,23,25,26,28,30,31,34
10	Perform and explain addition and subtraction on integers using models and apply them in daily life situations (temperatures, geographical cross sections) also solve various puzzles	1,7,8,10,14,16,24,27,29, 32,33,35,36 37,38,39,40,41,42,43,44

1. Weightage To Objectives

Sl.NO	Objectives	No. of questions	Marks	Percentage
1	Knowledge	13	13	20 %
2	Understanding	15	20	30%
3	Application	07	20	30%
4	Skill	09	13	20 %
Total		44	66	100 %

2. Weightage To Difficulty Level

Sl.NO	difficulty level	No. of questions	Marks	Percentage
1	Easy	16	20	30 %
2	Average	23	33	50 %
3	Difficult	05	13	20%
Total		44	66	100 %

Chapter-10

The Other Side of Zero

I. Choose the correct answer from the given four alternatives

$10 \times 1 = 10$

1. $(-11) + (-15)$ _____ $11 + 15$ (U- Average)
A. < B. > C. = D. #
2. On a number line, the farthest number to the left (S- Easy)
A. -12 B. -5 C. 0 D. 10
3. The numbers less than zero are called (K- Easy)
A. Positive numbers B. Decimals C. Whole numbers D. Negative numbers
4. The following statement is correct about the negative numbers. (U- Average)
A. They are always smaller than positive numbers.
B. They are always greater than positive numbers.
C. They are equal to positive numbers.
D. They are the same as fractions.
5. The number, neither positive nor negative is (K- Easy)
A. -1 B. 0 C. 1 D. 100
6. What is the inverse of +7? (K- Easy)
A. +7 B. -7 C. 0 D. 1
7. In Bela's Building of Fun, the floor represents the ground level (K - Easy)
A. +1 B. -1 C. 0 D. +2
8. If the temperature is -5°C and it drops by 3°C , then the new temperature (U- Easy)
A. -8°C B. -2°C C. 3°C D. 8°C
9. The sum of $(-4) + (+6)$ (K - Easy)
A. -10 B. -2 C. 2 D. 10
10. If you are at floor +3 and press the “ - “ button 5 times, then you will be at (S- Easy)
A. +8 B. -2 C. 0 D. -3

II. Fill in the blanks.

$9 \times 1 = 9$

11. On the number line, (-15) is to the _____ of zero. (K- Easy)
12. On the number line, 10 is to the _____ of zero. (K- Easy)

13. The additive inverse of (-1) is _____ (U- Easy)
14. $(-11) + (-2) + (-1) =$ _____. (U- Average)
15. An integer with positive sign $(+)$ is always greater than _____ (K- Easy)
16. The integer 5 units to the right of zero on the number line is _____. (K- Easy)
17. Number of integers lying between (-2) and 2 is _____. (U- Easy)
18. Number of whole numbers lying between -7 and 6 is _____. (U- Easy)
19. The additive inverse of a negative integer is always _____. (K- Easy)

III. Match the following.

$$5 \times 1 = 5$$

20.

(A -Easy)

- | | | |
|---|---|----|
| a. The additive inverse of $+2$ | - | 0 |
| b. The greatest negative integer | - | -2 |
| c. The smallest positive integer | - | 2 |
| d. The smallest integer greater than every negative integer | - | 1 |
| e. Sum of predecessor and successor of (-2) | - | -1 |

IV. True / False.

$$6 \times 1 = 6$$

21. The smallest natural number is 0 (K- Easy)
22. Zero is not an integer as it is neither positive nor negative. (K- Easy)
23. The sum of two negative integers is always smaller than both the integers. (U- Easy)
24. Since $5 > 3$, therefore, $-5 > -3$. (U- Average)
25. Every positive integer is greater than every negative integer (K- Easy)
26. The sum of any two positive integers is always greater than both the integers. (U-Average)

V. Solve the following.

$$6 \times 1 = 6$$

27. Write 5 integers which are less than (-100) but greater than (-150) . (S- Average)
28. What is the smallest negative integer? (K-Easy)
29. If profit is positive, how would you represent a profit of ₹ 50 and a loss of ₹ 30? (AP- Average)
30. Subtract (-8) from $+3$ using a number line (S - Easy)



31. Mark 3 positive numbers & 3 negative numbers on the number line above. (S-Easy)
32. You start from floor +2 & press -3 in the lift. where will you reach? Write an expression for this movement (S-Average)

VI. Solve the following problems.

$$6 \times 2 = 12$$

33. If depth is considered as positive, express the following as depth. (A- Difficult)
- 25 m deep
 - 45 m height
34. Indicate the integer on a number line which is (S- Difficult)
- 4 less than -1
 - 5 more than -2
35. Check whether following are true. (U- Average)
- $3 + (0 + 9) = (3 + 0) + 9$
 - $34 + \{90 + (-11)\} = (34 + 90) + (-11)$
36. Complete the grid to make the required border sum. (S- Average)

-3		2
		0
-1		

Border sum is 0

	-5	
-4		
	-7	-3

Border sum is -12

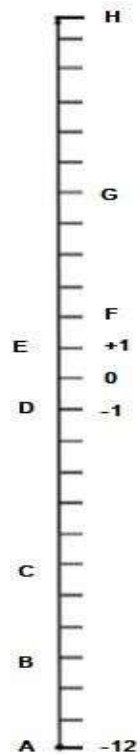
37. Starting from different floors, find the movements required to reach floor -5 for example, if I started at floor +2, I must press -7 to reach floor -5. the expression is $(+2) + (-7) = -5$. find more such starting positions and the movements needed to Reach floor -5 and write the expression. (U- average)
38. If Depth is Considered positive express the following as depth; (U-Difficult)
- 35 metres deep
 - 95 metres height

VII. Solve the following problems.

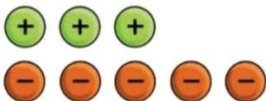
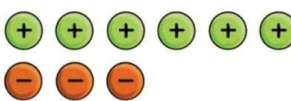
$$6 \times 3 = 18$$

39. Evaluate the following: (A- Average)
- $79 - 68 + 28 - (-32)$
 - $153 + 218 - \{29 - (367)\}$

40. If floor A = -12, floor D = -1 and floor E = +1 in the building shown on the right as a line, find the numbers of floors B, C, F, G and H. (S- Difficult)

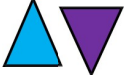
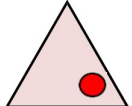
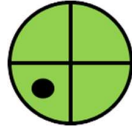


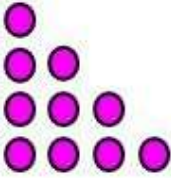
41. Cancel the zero pairs in the following two sets of tokens. On what floor is the lift attendant in each case?. Write the corresponding addition statement in each case ? (U- average)

a.  b. 

42. Suppose you start with Rs. 0 in your bank account and then you have credits of Rs.30, Rs. 40 and Rs. 50 and debits of Rs 40, Rs.50 and Rs.60. What is your bank account balance now? (A- difficult)
43. Suppose you start with Rs 0 in your bank account, and then you have debits of ₹ 1, ₹ 2, ₹ 4, ₹ 8, ₹ 16, ₹ 32, ₹ 64 and ₹ 128 and then a single credit of ₹ 256. What is your bank account balance now.? (A- difficult)
44. Why is it generally better to try and maintain a positive balance in your bank account.? what are circumstances under which it may be worthwhile to temporarily have a Negative balance ? (A- average)

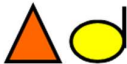
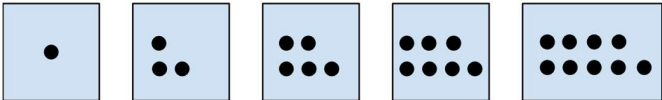
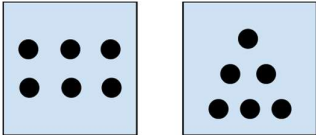
6th Mathematics Key Answers

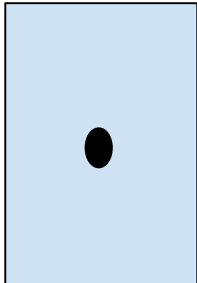
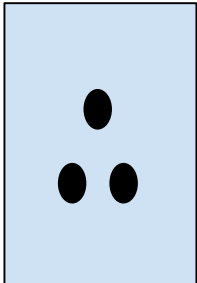
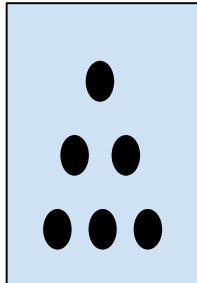
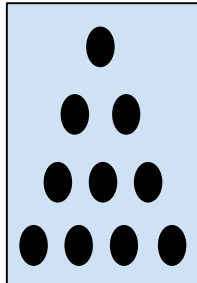
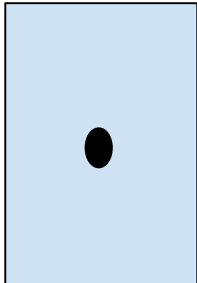
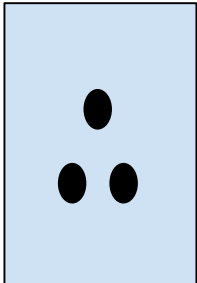
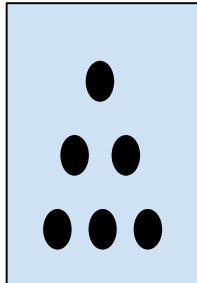
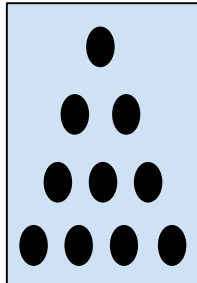
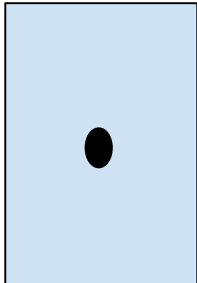
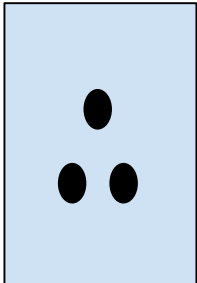
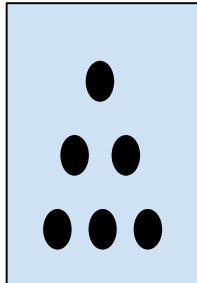
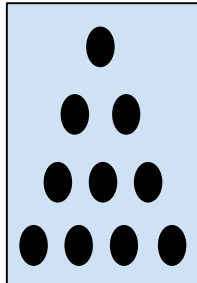
Main	Question Number	Answers
Chapter -1 Patterns in Mathematics		
I	1	C.45
	2	A. 80, 160
	3	B. 25
	4	C. 1111
	5	A. E5
	6	D. 34
	7	D. 
	8	B. 
	9	C. EF
	10	C. ek
	11	B. 

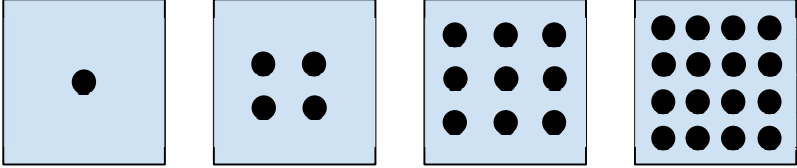
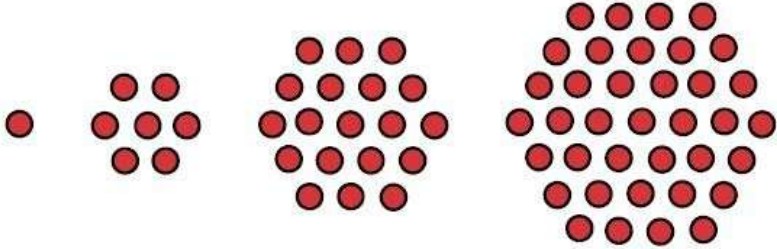
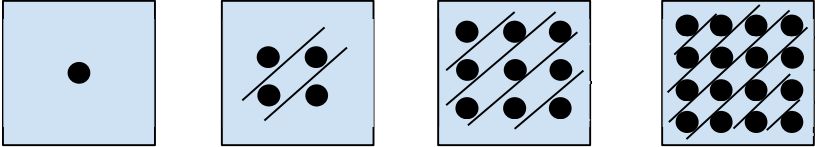
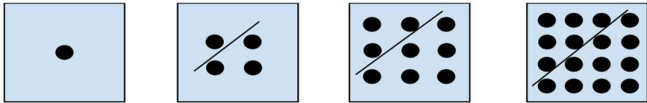
	12	C. 
	13	C. 42
	14	B. 
	15	B. 32
	16.	D. 250
II.	17	Triangular numbers
	18	Square numbers
	19	125
	20	
	21	I
	22	49
	23	9
	24	6

	25	Geometry
	26	Square
	27	Triangle number
	28	9
III.	29	True
	30	True
	31	False
	32	True
	33	False
	34	True
	35	False
	36	True
IV.	37	A list of numbers arranged in a specific order according to a pattern/rule is called number sequence

	38	A list of shapes arranged in a specific order according to a pattern/rule is called sequence of shapes
	39	A number that can be represented by triangle of dots is called triangular number.
	40	An integer that can be obtained by multiplying a number by itself is called square number.
	41	An integer that can be obtained by multiplying a number by 3 times is called cube number
V.	42	Ordered list of numbers that follows specific rule is called number pattern
	43	15
	44	2 is added to the previous number
	45	85
	46	Previous number is multiplied by 2 to get the number
	47	Previous number is multiplied by 3 to get the number
VI.	48	I 10 , K 12
	49	5, 11
	50	red , blue
	51	To get next number multiplay sequence number by 2 OR Twice the given number to get next number.

	52	Multiples of 9
	53	Next sequence number is 16 Because, add the next natural number to the given number (Example : 1,
	54	Next shape of the sequence 
	55	Each number is the sum of the two preceding ones.
	56	1 1+2=3 3+3=6 6+4=10 10+5=15 15+6=21 21+7=28 Therefore the next two triangular numbers are 21 & 28
	57	Rule – Multiple of 8 The first two numbers are 8,16
	58	
	59	
VII.	60	Add 5 to each number. (multiples of 5) Next four numbers of the sequence are 50, 55, 60, 65
	61	These are called virahanka numberes. Rule : Each number is the sum of the two preceding ones. 1, 3, 5, 8, 13, 21.... Eg : 1, 1+2=3, 2+3=5, 3+5=8, 5+8=13, 8+13=21.....

VIII.	62	Next line of the sequence = 1 2 3 4 3 2 1 Rule : $1^2 = 1$ $11^2 = 121$ $111^2 = 12321$ $1111^2 = 1234321....$								
	63	Fourth number of the sequence =  4 Tenth number of the sequence =  10 Rule : Write the next natural number after triangle shape.								
	64	First number is 4 and multiplied by 3 to the previous number 4 $4 \times 3 = 12$ $12 \times 3 = 36$ $36 \times 3 = 108$ $108 \times 3 = 324$ $324 \times 3 = 972$ The missing numbers are 108 and 972								
	65	First step has – 2 blocks $= 1^2 + 1 = 2$ 2nd step has - 6 blocks $= 2^2 + 2 = 6$ 3rd step has -12 blocks $= 3^2 + 3 = 9 + 3 = 12$ 4th step has -- 20 blocks $= 4^2 + 4 = 20$ 5th step has = $5^2 + 5 = 25 + 5 = 30$ blocks 6th step has = $6^2 + 6 = 36 + 6 = 42$ blocks								
	66	<table><tr><td>1</td><td>3</td><td>6</td><td>10</td></tr><tr><td></td><td></td><td></td><td></td></tr></table>	1	3	6	10				
1	3	6	10							
										

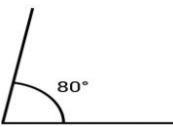
	67	 1,4,9,16.... numbers of dots can arrange exactly a square in shape. So, these numbers are called square numbers.
IX.	68	Pictorial representation of hexagonal numbers.  1 7 19 37 Rule : Increase the number by adding the multiples of 6 to each number. Eg : 1, $1+6=7$, $7+12=19$, $19+18=37$ Next two numbers are $= 37+24=61$ and $61+30=91$
	69	a) Add 3 to the previous number to get the next number in the sequence b) 15, 18, 21 c) To get the missing number add 3 to the previous number.
	70	
	71	

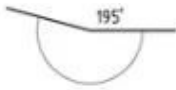
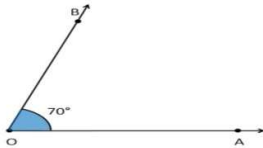
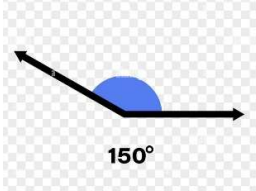
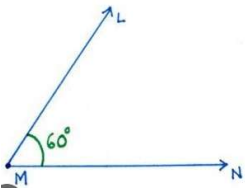
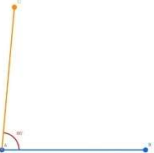
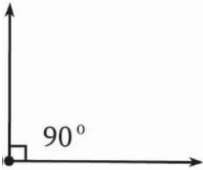
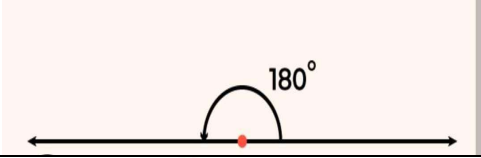
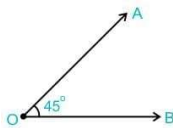
CHAPTER – 2 LINES AND ANGLES

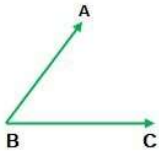
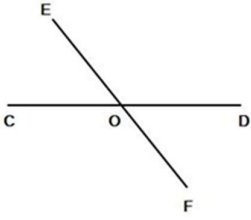
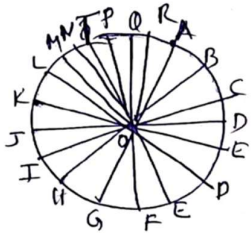
I.	1	C. 
	2	B. 360⁰
	3	A. 
	4	D. 4
	5	D. angle
	6	B..Line segment
	7	A. Protractor
	8	D. Both Band C [Two straight angles / Four right angles]
	9	D. 90°
	10	B. Reflex angle
II.	11	Angle bisector
	12	Two

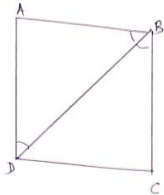
	13	Degree
	14	Point
	15	65°
	16	0° to 180°
	17	Obtuse angle
III.	18. a	Right angle
	b	Reflex angle
	c	Complete angle
	d	Obtuse angle
	e	Straight angle
	f	Acute angle
IV.	19	True
	20	False
	21	False

	22	True
	23	True
	24	True
	25	True
	26	False
	27	True
	28	False
V.	29	A figure that determines a precise location but has no length, breadth or height.
	30	Shortest path between two points.
	31	A line is obtained when a line segment is extended on both sides indefinitely.
	32	A portion of a line starting at a point and going in one direction
	33	An angle can be visualized as two rays starting from a common starting point.
	34	Angle which measures 90°
	35	More than 0° and less than 90° .

	36	More than 90° and less than 180° .
	37	Angle which measures 180° .
	38	More than 180° and less than 360° .
VI.	39	240°
	40	180°
	41	130°
	42	60°
	43	90°
	44	360°
	45	180°
	46	30°
	47	60°
VII.	48	
	49	

	50	
	51	
	52	
	53	
	54	
	55	
	56	
	57	
VIII.	58	$\angle TQR = 90^\circ = \text{right angle}$ $\angle SQR = 120^\circ = \text{obtuse angle}$ $\angle PQR = 180^\circ = \text{straight angle}$

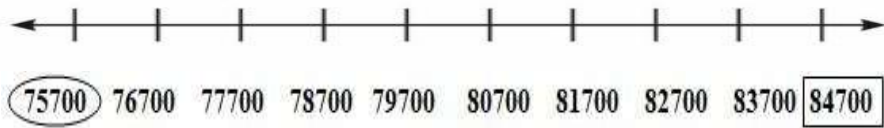
59	i.  ii.  iii. 
60	Angles: $\angle AOB$, $\angle BOC$, $\angle COD$, $\angle DOE$, $\angle EOF$, $\angle FOG$, $\angle GOH$, $\angle HOI$, $\angle IOJ$, $\angle JOK$, $\angle KOL$, $\angle LOM$, $\angle MON$, $\angle NOT$, $\angle TOP$, $\angle POQ$, $\angle QOR$, $\angle ROA$ 
61	a. Four rays: QW, QR, QP, ST, SU, SV (Any 4) b. Two line segments: QW, QR, PQ, SO, SU, ST (Any 2) c. Two lines: PR, TU
62	a. $\angle ECB$ b. $\angle ECF$ c. $\angle ECG = \angle ECD$ (Both angles are equal)

IX.	63	i. P, O, R, Q, T, S ii. $\angle POR$, $\angle POS$, $\angle SOQ$, $\angle ROQ$ iii. OS, PO, OR, OQ iv. PQ, RS, OT
	64	$AOC = 60^\circ \quad \therefore AOB = 180^\circ$ $COD = 30^\circ \quad \therefore COB = 120^\circ - 90^\circ$
	65	- $\angle ABD = 45^\circ$ - $\angle CBD = 45^\circ$ - $\angle ADB = 45^\circ$ - $\angle BDC = 45^\circ$ 
	66	(a) $\angle AOB$ (Straight angle) (b) $\angle CDE$ (Right angle) (c) $\angle FGH$ (Reflex angle) (d) $\angle IJK$ (Acute angle)
	67	Letter M: - Angle 1 = Acute angle - Angle 2 = Acute angle - Angle 3 = Reflex angle Total Count: Acute angles = 2, Reflex angles = 1 Letter A: - Angle 1 = Acute angle - Angle 2 = Acute angle - Angle 3 = Obtuse angle - Angle 4 = Acute angle - Angle 5 = Obtuse angle Total Count: Acute angles = 3, Obtuse angles = 2 Letter T: - Angle 1 = Right angle - Angle 2 = Right angle Total Count: Right angles = 2 Letter H: - Angle 1 = Right angle

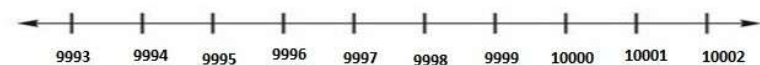
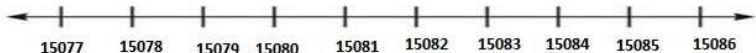
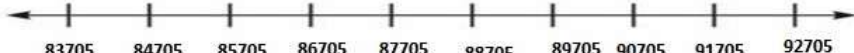
		- Angle 2 = Right angle - Angle 3 = Right angle - Angle 4 = Right angle Total Count: Right angles = 4
Chapter – 3 Number Play		
I.	1	B. 33310
	2	C. 25452
	3	B. 101
	4	C. 6174
	5	B. They read the same forwards and backwards
	6	B. 21
	7	D. Equal intervals
	8	B. 4774
	9	C. 20
	10	B. 10
	11	A. 20
	12	D. 6
II.	13	96000
	14	0
	15	Finding exact values
	16	29
	17	32
	18	93
	19	97
	20	33310

	21	6174						
	22	10						
	23	Greater						
	24	2						
III.	25	False						
	26	True						
	27	False						
	28	True						
	29	False						
	30	False						
	31	True						
	32	True						
	33	False						
	34	False						
IV.	35	The numbers read the same from left to right and from right to left are called palindrome numbers.						
	36	6174						
	37	97421						
	38	1001						
	39	<table><tr><td>9780</td><td>9882</td><td>5662</td><td>1290</td><td>7662</td><td>8192</td></tr></table>	9780	9882	5662	1290	7662	8192
9780	9882	5662	1290	7662	8192			
	40	Since, 11 is an odd number we multiply 11 by 3 and then add 1 to it. (11x3)+1 = 33+1 = 34						
		Largest number = 8641						

	41	Smallest number = 1468 Differences = 8641-1468 =7173										
	42	The first 7 odd numbers are; 1,3,5,7,9,11,13 =1+3+5+7+9+11+13 =49										
	43	The sum of first 10 natural numbers 1,2,3,4,5,6,7,8,9,10 =1+2+3+4+5+6+7+8+9+10 55										
V.	44	<table><tr><td>6543</td><td>6872</td><td>5632</td><td>4890</td><td>5555</td><td>4123</td><td>6452</td><td>7641</td><td>8653</td><td>9542</td></tr></table>	6543	6872	5632	4890	5555	4123	6452	7641	8653	9542
6543	6872	5632	4890	5555	4123	6452	7641	8653	9542			
	45	<table><tr><td>596</td><td>451</td><td>265</td><td>104</td><td>105</td><td>106</td><td>107</td><td>109</td><td>108</td><td>210</td></tr></table>	596	451	265	104	105	106	107	109	108	210
596	451	265	104	105	106	107	109	108	210			
	46	<table><tr><td>6828</td><td>670</td><td>9435</td><td>3780</td><td>3708</td><td>7308</td><td>8000</td><td>5583</td><td>52</td></tr></table>	6828	670	9435	3780	3708	7308	8000	5583	52	
6828	670	9435	3780	3708	7308	8000	5583	52				
	47	Hence 980 is the second largest number but it is not a super cell as 990 is a supercell										
	48	<table><tr><td>5346</td><td>8345</td><td>1173</td><td>1258</td><td>1232</td><td>1054</td><td>7543</td><td>9635</td><td>9754</td></tr></table>	5346	8345	1173	1258	1232	1054	7543	9635	9754	
5346	8345	1173	1258	1232	1054	7543	9635	9754				
	49	Maximum number of super cells that we can get is 5. <table><tr><td>999</td><td>121</td><td>578</td><td>434</td><td>857</td><td>158</td><td>981</td><td>785</td><td>998</td></tr></table>	999	121	578	434	857	158	981	785	998	
999	121	578	434	857	158	981	785	998				

	50	<table><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td></tr></table> Second Largest Number = 8 (Not a supercel	1	2	3	4	5	6	7	8	9							
1	2	3	4	5	6	7	8	9										
VI.	51	i. Left = 111 ii. Middle = 123 iii. Right = 234																
	52																	
	53	Smallest 5- digit palindrome = 10001 Largest 5- digit palindrome = 99999 - The sum of the smallest and largest 5 - digit number = 10001 + 99999 = 110000 - The difference between the largest and smallest 5 – digit number = 99999- 10001 = 89998																
VII.	54	<table><tr><td>84310</td><td>84301</td><td>34106</td><td>34810</td></tr><tr><td>48103</td><td>13408</td><td>40318</td><td>18304</td></tr><tr><td>13840</td><td>10348</td><td>40183</td><td>18403</td></tr><tr><td>10483</td><td>10843</td><td>10438</td><td>81340</td></tr></table> i. 84310 ii. 10483 iii. 48103	84310	84301	34106	34810	48103	13408	40318	18304	13840	10348	40183	18403	10483	10843	10438	81340
84310	84301	34106	34810															
48103	13408	40318	18304															
13840	10348	40183	18403															
10483	10843	10438	81340															

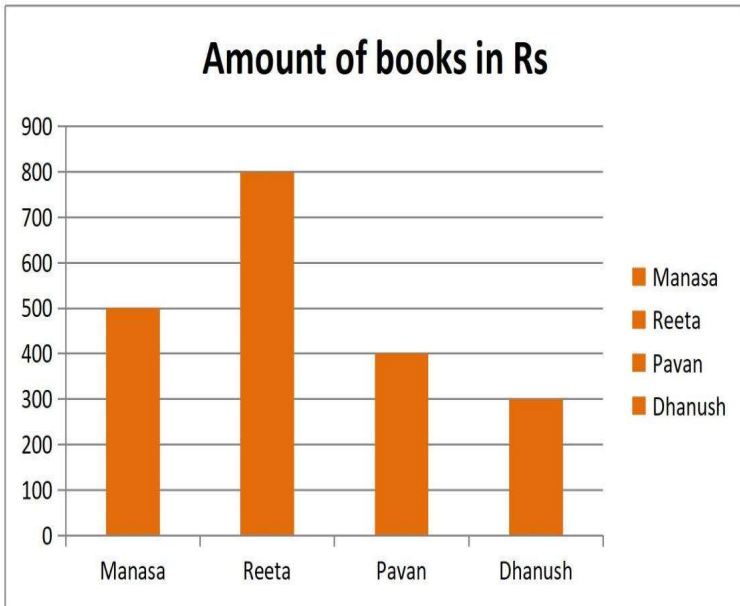
55	3-digit number whose digits are consecutive (for example, 345) between 100 to 999 are = 123 + 234 + 345 + 456 + 678 + 789 = 2625									
56.	If we swap first and last digit of central number 62871, we get desired result. <table><tr><td>16200</td><td>39344</td><td>29765</td></tr><tr><td>23609</td><td>21876</td><td>45306</td></tr><tr><td>19381</td><td>50319</td><td>38408</td></tr></table> i.the biggest number is 50319 ii. the smallest number is 16200 iii. the number whose addition is 22 is 19381	16200	39344	29765	23609	21876	45306	19381	50319	38408
16200	39344	29765								
23609	21876	45306								
19381	50319	38408								
57	a) 5, 8, 3, 2 largest 4 – digit number : 8532 Smallest 4 – digit number : 2358 Difference : 8532 – 2358 = 6174 > 5085 b) 4,6,3,2 largest 4 - digit number : 6432 Smallest 4 - digit number : 2346 Difference : 6432 – 2346 = 4086< 5085 c) 5, 8 , 3 , 2 ---- 8532 + 2358 = 10890 > 9779 d) 4, 6, 3, 2 ----- 6432 + (2346) = 8778 < 9779									
58	As per Collatz Conjecture rule : starts with any number , if the number is even, take half of it , if the number is odd, then multiply it by 3 and add 1 and repeat. a) $\frac{100}{2} = 50$ (50 is even) b) $\frac{50}{2} = 25$ (25 is odd) c) $(25 \times 3) +1$ $75 + 1 = 76$									

		d) $\frac{76}{2} = 38$ e) $\frac{38}{2} = 19$ The sequence formed with starting number 100 is as follows; 100, 50, 25, 76 , 38, 19, 58, 29, 88, 44, 22, 11, 34 , 17 , 52 , 26 , 13 , 40 , 20 , 10 , 5 , 16 , 8 , 4 , 2 , 1 Hence the Collatz Conjecture holds for the Starting number 100.																
	59	a) 590, 770 , 248 , 680 etc. b) 59 (5 + 9 = 14) c) 95000 (9 + 5 + 0 + 0 + 0 = 14) d) Infinite numbers can be formed having the digit sum 14 Yes, we can make an bigger even number.																
	60	a)  b)  c)  d) 																
VIII.	61	<table><tr><td>96310</td><td>96301</td><td>36409</td><td>36910</td></tr><tr><td>13690</td><td>13609</td><td>60319</td><td>19306</td></tr><tr><td>13906</td><td>10936</td><td>60193</td><td>19360</td></tr><tr><td>10369</td><td>10963</td><td>10396</td><td>19630</td></tr></table>	96310	96301	36409	36910	13690	13609	60319	19306	13906	10936	60193	19360	10369	10963	10396	19630
96310	96301	36409	36910															
13690	13609	60319	19306															
13906	10936	60193	19360															
10369	10963	10396	19630															

		a) The biggest number in the table is 96310 b) The smallest even number in the table is 10396 c) The smallest number greater than 50,000 in the table is 60,193.
Chapter - 4 - Data Handling and Presentation		
I	1	B. Collection of facts and information
	2	A. Tally marks
	3	D. Pictures
	4	B. Equal widths
	5	C. Vertical bar graph
II.	6	Data
	7	7
	8	Bar graph
	9	Frequency
	10	Pictograph
	11	Frequency
	12	Scale
	13	Equal
	14	Analyse

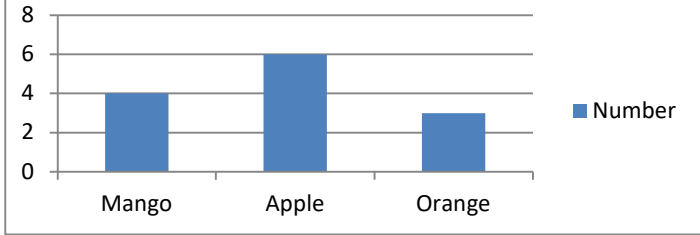
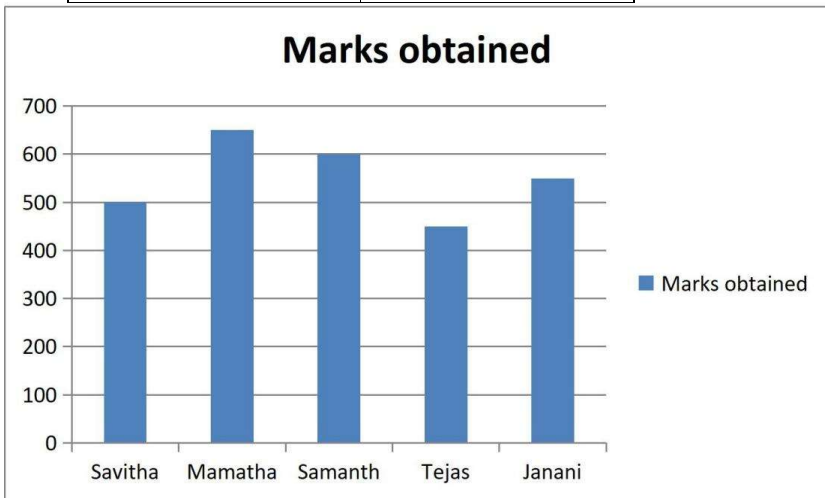
	15	Column
III	16	a. Collection of information
		b. Quick counting
		c. Uses pictures
		d. Equal width bars
		e. Number of occurrences
IV	17	False
	18	False
	19	True
	20	False
	21	True
	22	True
	23	True
	24	False
	25	True
	26	False

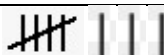
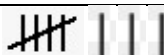
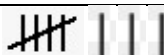
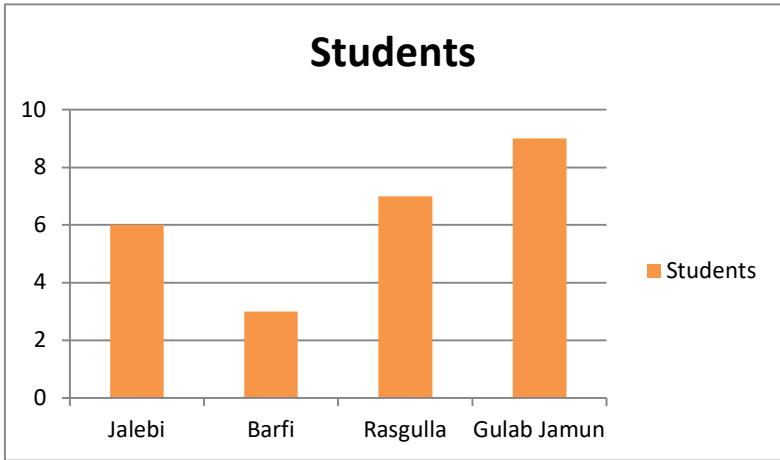
	27	True
V.	28	Information
	29	Bar graph
	30	Bar graph
	31	Pictograph
	32	Comparison
VI.	33	Facts, numbers, measures, observations and other descriptions of things that convey information about those things is called data.
	34	Frequencies are the counts of the occurrences of values, measures or observations.
	35	Pictograph represents data in the form of pictures or objects or parts of objects.
	36	Bar graphs have bars of uniform width, length or height that indicates the total frequency of occurrence.
	37	When data visualizations are further beautified with more extensive artistic and visual imagery they are called infographics.
	38	Tally Marks: Tally marks are symbols used for counting and recording data quickly.
	39	Raw Data: Raw data is the original collection of information before arranging or organizing it.
	40	Representation of Data: Representation of data means showing data in the form of tables, pictographs, or bar graphs for easy understanding
VII.	41	3
	42	Nanda and Krishiv
	43	Kesaribath

	44	7										
	45	30										
	46											
	47	Frequency of 5 = 3										
	48	$4 \times 10 = 40$ students										
	49	$6 \times 5 = 30$ books										
	50	2, 3, 4, 5, 6										
	51	2										
VIII.	52	• 15 • Two wheeler										
	53	• 900 • 300										
	54	• 130 cm • March										
	55	• 60 • 4 member										
	56	Amount of books in Rs <table><thead><tr><th>Student</th><th>Amount (Rs)</th></tr></thead><tbody><tr><td>Manasa</td><td>500</td></tr><tr><td>Reeta</td><td>800</td></tr><tr><td>Pavan</td><td>400</td></tr><tr><td>Dhanush</td><td>300</td></tr></tbody></table>	Student	Amount (Rs)	Manasa	500	Reeta	800	Pavan	400	Dhanush	300
Student	Amount (Rs)											
Manasa	500											
Reeta	800											
Pavan	400											
Dhanush	300											

57	Scale :  = 1000 plants <table><tr><th>Months Name</th><th colspan="4">Coconut Plants</th></tr><tr><td>January</td><td></td><td></td><td></td><td></td></tr><tr><td>February</td><td></td><td></td><td></td><td></td></tr><tr><td>March</td><td></td><td></td><td></td><td></td></tr><tr><td>April</td><td></td><td></td><td></td><td></td></tr></table>	Months Name	Coconut Plants				January					February					March					April				
Months Name	Coconut Plants																									
January																										
February																										
March																										
April																										
58	<table><tr><th>Fruit</th><th>Tally</th><th>Frequency</th></tr><tr><td>Apple</td><td>lll</td><td>3</td></tr><tr><td>Mango</td><td>ll</td><td>2</td></tr><tr><td>Banana</td><td>1</td><td>1</td></tr></table>	Fruit	Tally	Frequency	Apple	lll	3	Mango	ll	2	Banana	1	1													
Fruit	Tally	Frequency																								
Apple	lll	3																								
Mango	ll	2																								
Banana	1	1																								
59	Largest number = 6 Frequency of 5 = 3																									
60	<table><tr><th>Game</th><th>No of Students</th></tr><tr><td>Cricket</td><td>★★★</td></tr><tr><td>Football</td><td>★★</td></tr><tr><td>Hockey</td><td>★</td></tr></table>	Game	No of Students	Cricket	★★★	Football	★★	Hockey	★																	
Game	No of Students																									
Cricket	★★★																									
Football	★★																									
Hockey	★																									
61	Scale helps represent large data clearly and accurately.																									

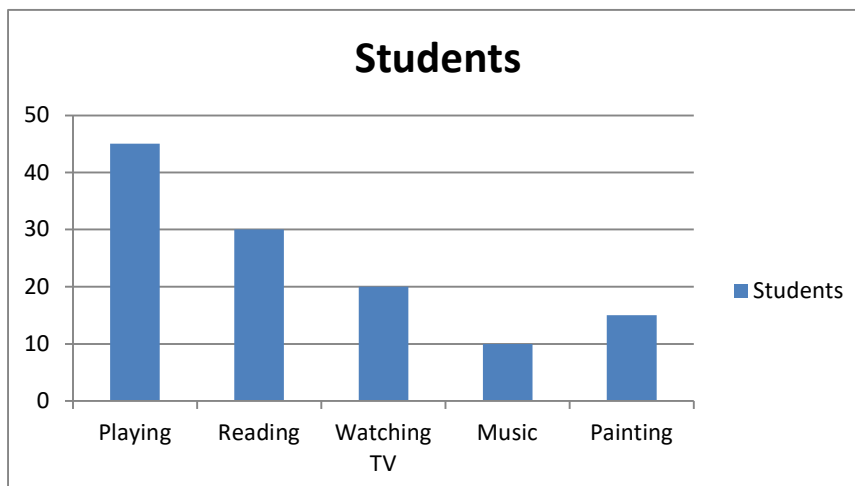
	62	Easy comparison of data. Easy understanding of information												
IX.	63	Speed of the animals (Km/h) <table><thead><tr><th>Animal</th><th>Speed (Km/h)</th></tr></thead><tbody><tr><td>Dog</td><td>20</td></tr><tr><td>Lion</td><td>60</td></tr><tr><td>Zebra</td><td>30</td></tr><tr><td>Tiger</td><td>70</td></tr><tr><td>Cheetah</td><td>80</td></tr></tbody></table>	Animal	Speed (Km/h)	Dog	20	Lion	60	Zebra	30	Tiger	70	Cheetah	80
Animal	Speed (Km/h)													
Dog	20													
Lion	60													
Zebra	30													
Tiger	70													
Cheetah	80													
	64	Scale : ★ = 25 Fruits <table><thead><tr><th>Types of fruits</th><th>Number of plants</th></tr></thead><tbody><tr><td>Custard Apple</td><td>★ ★ ★ ★ ★ ★</td></tr><tr><td>Mango</td><td>★ ★ ★ ★</td></tr><tr><td>Lemon</td><td>★ ★</td></tr><tr><td>Orange</td><td>★</td></tr></tbody></table>	Types of fruits	Number of plants	Custard Apple	★ ★ ★ ★ ★ ★	Mango	★ ★ ★ ★	Lemon	★ ★	Orange	★		
Types of fruits	Number of plants													
Custard Apple	★ ★ ★ ★ ★ ★													
Mango	★ ★ ★ ★													
Lemon	★ ★													
Orange	★													
	65	<table><thead><tr><th>Transport</th><th>Frequency</th></tr></thead><tbody><tr><td>Bike</td><td>4</td></tr><tr><td>Car</td><td>2</td></tr><tr><td>Bus</td><td>2</td></tr><tr><td>Bicycle</td><td>1</td></tr></tbody></table>	Transport	Frequency	Bike	4	Car	2	Bus	2	Bicycle	1		
Transport	Frequency													
Bike	4													
Car	2													
Bus	2													
Bicycle	1													

	66	Maximum books borrowed on Tuesday. Total books borrowed = 5 + 8 + 3 = 16																								
	67	Number <table><thead><tr><th>Category</th><th>Number</th></tr></thead><tbody><tr><td>Mango</td><td>4</td></tr><tr><td>Apple</td><td>6</td></tr><tr><td>Orange</td><td>3</td></tr></tbody></table>	Category	Number	Mango	4	Apple	6	Orange	3																
Category	Number																									
Mango	4																									
Apple	6																									
Orange	3																									
	68	Equal spacing helps show that categories are separate																								
	69	25 ÷ 5 = 5 symbols needed																								
X.	70	<table><thead><tr><th>Students Name</th><th>Marks scored</th></tr></thead><tbody><tr><td>Savitha</td><td>500</td></tr><tr><td>Mamatha</td><td>650</td></tr><tr><td>Samanth</td><td>600</td></tr><tr><td>Tejas</td><td>450</td></tr><tr><td>Janani</td><td>550</td></tr></tbody></table> Marks obtained <table><thead><tr><th>Student Name</th><th>Marks obtained</th></tr></thead><tbody><tr><td>Savitha</td><td>500</td></tr><tr><td>Mamatha</td><td>650</td></tr><tr><td>Samanth</td><td>600</td></tr><tr><td>Tejas</td><td>450</td></tr><tr><td>Janani</td><td>550</td></tr></tbody></table>	Students Name	Marks scored	Savitha	500	Mamatha	650	Samanth	600	Tejas	450	Janani	550	Student Name	Marks obtained	Savitha	500	Mamatha	650	Samanth	600	Tejas	450	Janani	550
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72	Students should draw a correct bar graph using scale 1 unit = 1 student Students <table><thead><tr><th>Item</th><th>Students</th></tr></thead><tbody><tr><td>Jalebi</td><td>6</td></tr><tr><td>Barfi</td><td>3</td></tr><tr><td>Rasgulla</td><td>7</td></tr><tr><td>Gulab Jamun</td><td>9</td></tr></tbody></table>			Item	Students	Jalebi	6	Barfi	3	Rasgulla	7	Gulab Jamun	9																	
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	74	a) Largest shoe size = 6 b) Smallest shoe size = 3 c) Frequency of 5 = 4 d) Students with shoe size greater than 4 = 6																		
	75	Steps: • Draw horizontal and vertical axes • Choose suitable scale • Mark categories • Draw equal width bars • Write title and label																		
	76	Infographics may exaggerate information using shapes and sizes. Example: Bigger triangles may look much larger than actual values.																		
XI.	77	i. 3.1, 3.0, 2.9, 2.9, 2.8, 2.8, 2.7, 2.6, 2.5, 2.5, 2.4, 2.2, 2.1, 2.0 ii. 3.1 iii. 2.0 iv. $3.1 - 2.0 = 1.1$ v. 15																		
	78	Saplings <table><thead><tr><th>Day</th><th>Saplings</th></tr></thead><tbody><tr><td>Monday</td><td>20</td></tr><tr><td>Tuesday</td><td>40</td></tr><tr><td>Wednesday</td><td>30</td></tr><tr><td>Thursday</td><td>40</td></tr><tr><td>Friday</td><td>50</td></tr></tbody></table> a) Friday has maximum plantation. b) Total saplings = $20 + 40 + 30 + 40 + 50 = 180$ Students should draw a proper bar graph.	Day	Saplings	Monday	20	Tuesday	40	Wednesday	30	Thursday	40	Friday	50						
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Monday	20																			
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Bike	IIII	4																		
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Bicycle	II	2																		
Bus	II	2																		
Scooter	II	2																		

80



- a) Most preferred activity = Playing
 b) Least preferred activity = Music
 Students should draw proper bar graph.

81

Pictograph	Bar Graph
Uses pictures	Uses bars
Attractive visual	Better for large data
Needs key	Needs scale

82

Village	Dogs
A	◆ ◆
B	◆ ◆ ◆ ◆
C	◆ ◆ ◆
D	◆ ◆ ◆ ◆ ◆ ◆

- a) Village D has maximum dogs.
 b) Difference = $20 - 15 = 5$ dogs

Chapter – 5 - Prime Time

I.

1

D. 4

	2	A. 28
	3	C.5
	4	A. 15 and 39
	5	C. $2 \times 2 \times 2 \times 2 \times 3$
	6	C. 17
	7	B. 15 and 37
II.	8	Same number
	9	1
	10	2
	11	Co-prime numbers
	12	4
	13	2
	14	Prime
	15	10

III.	16. a	Must be an even number
	b	Must be end with zero
	c	Must be end with zero or 5
	d	The last 2 digits must be divided
	e	The last 3 digits must be divided
	f	Exactly two factors
	g	More than two factors
	h	Common factor is 1
	i	Ends with 0
	j	Difference is 2
IV.	17	True
	18	True
	19	True
	20	False

	21	True
	22	True
	23	False
	24	True
	25	False
	26	True
V.	27	Numbers that have only two factors.
	28	Numbers that have more than two factors.
	29	Pairs of primes having difference of 2.
	30	Numbers that don't have any common factor other than 1.
	31	Every number greater than 1 can be written as a product of prime numbers, this is called prime factorization.
VI.	32	995
	33	$65 = 1 \times 5 \times 13$
	34	(13 , 9)

	35	The two numbers have 1 as common factor are called co-prime numbers.
	36	989
	37	$21 = 3 \times 7$
	38	Yes. Last two digits of 96 are divisible by 4.
VII.	39	$200 = 1 \times 2 \times 2 \times 2 \times 5 \times 5$
	40	Multiples of 2 = 2, 4, 6, 8, 10 Multiples of 3 = 3, 6, 9, 12, 15 Common multiples of 2 and 3 = 6
	41	Factors of 12 = 1, 2, 3, 4, 6, 12 Factors of 15 = 1, 3, 5, 15 Common factors of 12 and 15 = 1, 3
	42	105, 110, 115, 120, 125, 130, 135, 140, 145, 150, 155, 160, 165, 170, 175, 180, 185, 190, 195
	43	A number of which the sum of all its factors is equal to twice the number is called a perfect number. Example : 6 is a perfect number Its factors are 1, 2, 3 and 6. Their sum is 12, which is twice the number 6.
	44	$18 = 2 \times 3 \times 3$ $35 = 5 \times 7$ Common factor is only 1. Therefore, 18 and 35 are co-prime numbers.
	45	Twin prime numbers between 1 and 20 are: 3 and 5 5 and 7 11 and 13 17 and 19

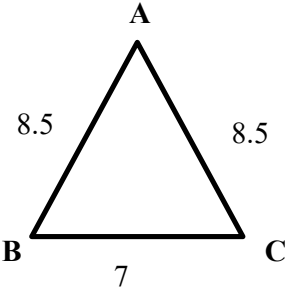
VIII.	46	Factors of 45 = 1, 3, 5, 9, 15, 45 Factors of 108 = 1, 2, 3, 4, 6, 9, 12, 18, 36, 54, 108 45 and 108 have common factors. So, These are not co-prime numbers.																														
	47	12, 6, 2 48 = 2 × 2 × 2 × 2 × 3																														
	48	a) 1408 = Divisible by 8 ∴ 408 ÷ 8 = 51 b) 3935 = Not divisible by 8 ∴ 935 Not divisible by 8.																														
	49	105 = 3 × 5 × 7 Prime factorisation of 105 is: 105 = 3 × 5 × 7																														
	50	225 = 3 × 3 × 5 × 5 27 = 3 × 3 × 3 Since 225 does not contain three 3s, 225 is not divisible by 27																														
IX	51	<table><tr><td></td><td>8</td><td>2</td><td>4</td><td>5</td><td>10</td></tr><tr><td>8560</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td></tr><tr><td>2024</td><td>✓</td><td>✓</td><td>✓</td><td>×</td><td>×</td></tr><tr><td>572</td><td>×</td><td>✓</td><td>✓</td><td>×</td><td>×</td></tr><tr><td>105</td><td>×</td><td>×</td><td>×</td><td>✓</td><td>×</td></tr></table>		8	2	4	5	10	8560	✓	✓	✓	✓	✓	2024	✓	✓	✓	×	×	572	×	✓	✓	×	×	105	×	×	×	✓	×
	8	2	4	5	10																											
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105	×	×	×	✓	×																											
	52	<table><tr><td>2</td><td>3</td><td>5</td><td>30</td></tr><tr><td>7</td><td>5</td><td>2</td><td>70</td></tr><tr><td>3</td><td>7</td><td>5</td><td>105</td></tr><tr><td>42</td><td>105</td><td>50</td><td></td></tr></table>	2	3	5	30	7	5	2	70	3	7	5	105	42	105	50															
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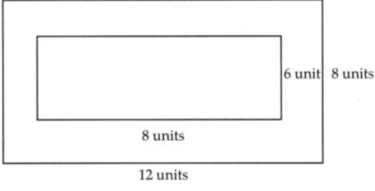
	53	$24 = 2 \times 2 \times 2 \times 3$ $180 = 2 \times 2 \times 3 \times 3 \times 5$ $\therefore$ All prime factors of 24 are not included in the prime factorization of 180. 180 is not divisible by 24																						
	54	The sum of first 20 prime numbers. $2 + 3 + 5 + 7 + 11 + 13 + 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59 + 61 + 67 + 71 = 639$																						
	55	Twin primes are pairs of primes having a difference OF 2. Example : (3, 5), (5, 7), (11, 13), (17, 19) , (41, 43)																						
	56	a) Smallest number with three different prime factors: $2 \times 3 \times 5 = 30$ b) Smallest number with four different prime factors: $2 \times 3 \times 5 \times 7 = 210$																						
	57	a) Divisibility rule of 4: If the last two digits are divisible by 4, the number is divisible by 4. Example: 124 b) Divisibility rule of 8: If the last three digits are divisible by 8, the number is divisible by 8. Example: 3128																						
X.	58	<table><tr><td>2</td><td>1 2 6 0 0 0</td></tr><tr><td>2</td><td>0 6 3 0 0 0</td></tr><tr><td>2</td><td>0 3 1 5 0 0</td></tr><tr><td>5</td><td>1 5 7 5 0</td></tr><tr><td>5</td><td>0 7 8 7 5</td></tr><tr><td>5</td><td>1 5 7 5</td></tr><tr><td>3</td><td>0 3 1 5</td></tr><tr><td>3</td><td>0 6 3</td></tr><tr><td>3</td><td>21</td></tr><tr><td>7</td><td>7</td></tr><tr><td></td><td>1</td></tr></table> $1,26,000 = 2 \times 2 \times 2 \times 2 \times 5 \times 5 \times 5 \times 3 \times 3 \times 7 \times 1$	2	1 2 6 0 0 0	2	0 6 3 0 0 0	2	0 3 1 5 0 0	5	1 5 7 5 0	5	0 7 8 7 5	5	1 5 7 5	3	0 3 1 5	3	0 6 3	3	21	7	7		1
2	1 2 6 0 0 0																							
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3	0 3 1 5																							
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3	21																							
7	7																							
	1																							

	59	a) $320 = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 5$ b) $243 = 3 \times 3 \times 3 \times 3 \times 3$ c) $141 = 3 \times 47$ d) $1000 = 2 \times 2 \times 2 \times 5 \times 5 \times 5$ e) $729 = 3 \times 3 \times 3 \times 3 \times 3 \times 3$
	60	a) Numbers divisible by 10: 5600, 6000, 77622160 b) Numbers divisible by 8: 5600, 6000, 77622160 c) Numbers divisible by all of 2, 4, 5, 8 and 10: 5600, 6000, 7762216
Chapter – 6 - Perimeter and Area		
I.	1	B. 8 cm
	2	D. 2 2 cm
	3	A. 100 cm²
	4	A. 3 cm
	5	A. 7cm & 5cm
	6	B. - 2
	7	A. 10 cm²
II.	8	15 cm
	9	49 m²

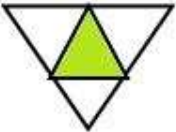
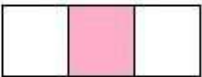
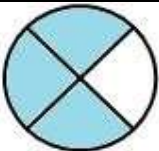
	10	265 m^2
	11	6 cm
	12	40 Cm
III.	13 a	$2 (\text{length} + \text{breadth})$
	b	$4 \times \text{length}$
	c	$\text{length} \times \text{breadth}$
	d	$\text{length} \times \text{length}$
	e	$\frac{1}{2} \times \text{base} \times \text{height}$
IV.	14	Perimeter is the sum of the lengths of all the sides of a shape
	15	The area of a closed figure is the measure of the region enclosed by the figure
V.	16	$\text{length} \times \text{length}$
	17	$\text{length} \times \text{breadth}$
VI.	18	$\text{length} = 3 \text{ cm}$ Perimeter of the square = $4 \times \text{length}$ $= 4 \times 3 \text{ cm}$ $= 12 \text{ cm}$ Area of the square = $\text{length} \times \text{length}$ $= 3 \text{ cm} \times 3 \text{ cm}$ $= 9 \text{ cm}^2$

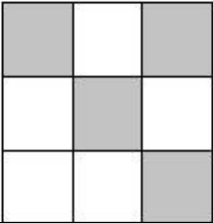
	19	length = 1 cm breadth = 2 cm Perimeter of rectangle = 2 (length + breadth) = 2 (1 cm + 2 cm) = 2 (3) = 6 cm Area of the rectangle = length × breadth = 1 cm × 2 cm = 2 cm²
	20	Area of the rectangle = 30 cm² length = 6 cm breadth = ? Area of the rectangle = length × breadth 30 cm² = 6 cm × breadth breadth = 30 cm² ÷ 6 cm breadth = 5 cm
	21	Length of the field = 13 cm Perimeter of the square = 4 × length = 4 × 13 cm = 52 cm
	22	Length of the rectangular garden = 50 m Area = 300 sq m breadth = ? Area of the rectangle = length × breadth 300 sq m = 50 m × breadth ∴ breadth = 300 sq m ÷ 50 m ∴ breadth = 6 m
	23	Area of the square = 64 sq cm Length of the side = ? Area of the square = length × length 64 sq cm = (length)² length = 8 cm
	24	Measurement of sides = 12 cm and 14 cm Perimeter of the triangle = 36 cm Perimeter of the triangle = 12 cm + 14 cm + 3rd side 36 cm = 26 cm + 3rd side 3rd side = 36 cm - 26 cm 3rd side = 10 cm

		=1cm												
VII	25	 Perimeter = AB + AC + BC = 8.5 + 8.5 + 7 = 24 c Perimeter = 24 centimetres												
	26	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Length</th><th>Breadth</th><th>Area of the rectangle</th></tr> </thead> <tbody> <tr> <td>15 cm</td><td>10 cm</td><td>150 sq cm</td></tr> <tr> <td>10 m</td><td>11 m</td><td>110 sq cm</td></tr> <tr> <td>50 cm</td><td>20 cm</td><td>1000 sq cm</td></tr> </tbody> </table>	Length	Breadth	Area of the rectangle	15 cm	10 cm	150 sq cm	10 m	11 m	110 sq cm	50 cm	20 cm	1000 sq cm
Length	Breadth	Area of the rectangle												
15 cm	10 cm	150 sq cm												
10 m	11 m	110 sq cm												
50 cm	20 cm	1000 sq cm												
	27	Length of the wire = 32 cm Perimeter of the square = $4 \times$ length Length of the side = ? $32 \text{ cm} = 4 \times \text{length}$ $\text{length} = 32 \text{ cm} \div 4$ Length of the side = 8 cm												
	28	Area of shaded reason = Area of biggest square - area of two small squares. $= (5 \times 5) - (2 \times 2 + 2 \times 2)$ $= 25 - (4+4)$ $= 25 - 8$ $= 17 \text{ cm}^2$												
	29	Perimeter of the square = $4 \times (\text{length of the side})$ $= 4 \times 15$ $= 60 \text{ centimetres}$ Let the breadth of the rectangle be 'x' centimetres Perimeter of the rectangle = $2(18+X) \text{ centimetres}$ $2(18+X) = 60$ $18 + X = 30$ $X = 30 - 18 = 12 \text{ centimetres}$ Area of the rectangle = lb = $X (18) = 12 \times 18 = 216 \text{ centimetres}^2$												

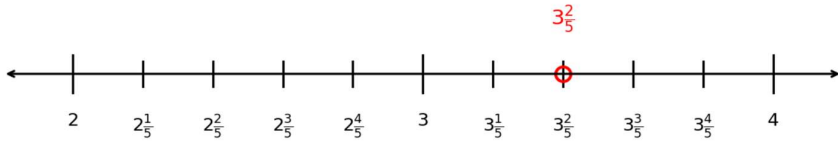
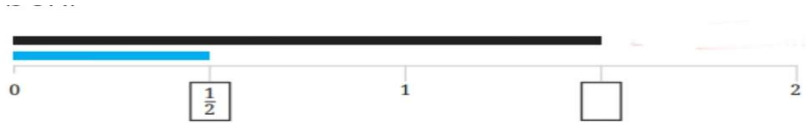
30		a) perimeter of rectangle = $2(l+b)$ $14 = 2(l+2)$ $l = 5\text{cm}$ b) perimeter of square = $4a$ $20 = 4a$ $a = 5\text{cm}$ c) perimeter of rectangle = $2(l+b)$ $12 = 2(3+b)$ $b = 3\text{m}$
31		perimeter of rectangle = $2(5+3)$ $= 16\text{cm}$ Now the wire is straightened & then bent to form a square. Perimeter of square = 16cm $4a = 16$ $a = 4\text{cm}$ The required length of the side of the square is 4 cm
32		As given the area of the rectangle of size 12 units $\times$ 8 units = 96 sq units and the area of inner rectangle that occupies exactly half of the area = 48 sq units 
33.		Perimeter of a rectangular, field = $2[l+b]$ $= 2[230 + 160]$ $= 780\text{m}$ The farmer wants 3 rounds of rope to fence. Total length of rope needed = 780×3 $= 2340 \text{ m}$

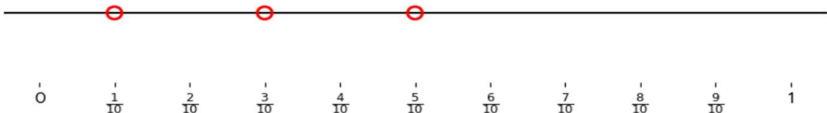
VIII.	34	Length of the rectangular garden = 120 m Breadth of the rectangular garden = 130 m Cost of 1 meter wire = ₹ 30 Perimeter of the rectangle = $2 (\text{length} + \text{breadth})$ $= 2 (120 \text{ m} + 130 \text{ m})$ $= 2 (250 \text{ m})$ $= 500 \text{ m}$ Total cost = $500 \text{ m} \times ₹ 30$ $= ₹ 15000$
	35	Length of the field = 150 m Breadth of the field = 200 m Perimeter = $2 (\text{length} + \text{breadth})$ $= 2 (150 \text{ m} + 200 \text{ m})$ $= 2 (350 \text{ m})$ $= 700 \text{ m}$ Length of the 2 round of wire = $700 \text{ m} \times 2$ $= 1400 \text{ m}$
	36	• Area of the garden = $15 \times 12 = 180 \text{ sq.}$ • Area of one flower bed = $2 \times 1 = 2 \text{ sq.m}$ • Area of four flower beds = $4 \times 2 = 8 \text{ sq.m}$ • Therefore, the area available for the lawn is: $180 - 8 = 172 \text{ sq.m}$
Chapter -7- Fractions		
I.	1	C. $\frac{5}{6}$
	2	C. $1 \frac{7}{9}$
	3	B. $\frac{3}{4}$
	4	A. $>$
	5	D. $\frac{10}{16}$

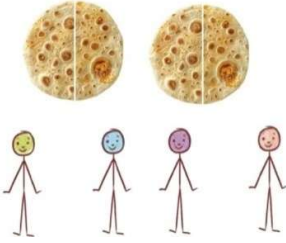
II.	6	True
	7	False
	8	False
	9	False
	10	True
	11	False
	12	True
III.	13	A fraction is a number that represent equal part of a whole .
	14	A fraction where the numerator is smaller than the denominator.
	15	A fraction where the numerator is greater than the denominator.
	16	Combines a whole number and a proper fraction.
	17	Fraction that have the same value even though they may look different with different numerator & denominators.
IV.	18	
	19	
	20	

	21	
V.	22	$2\frac{2}{3}$
	23	$1\frac{5}{7}$
	24	$2\frac{7}{9}$
VI.	25	$\frac{8}{5}$
	26	$\frac{49}{8}$
	27	$\frac{22}{7}$
	28	$\frac{5}{4}$
VII.	29	$\frac{1}{5}$
	30	12
	31	Proper fractions = $\frac{2}{7}, \frac{1}{2}, \frac{3}{4}$ Improper fractions = $\frac{6}{5}, \frac{11}{5}$
VIII.	32	>
	33	<
	34	>

IX.	35	a) 1 b) 2
	36	$\frac{5}{12}$ $\frac{5}{12} \text{ and } \frac{30}{84} \text{ (12 and 84 common denominator = 84)}$ $\frac{5}{12} = \frac{5 \times 7}{12 \times 7} = \frac{35}{84}$ $\frac{30}{84} = \frac{30 \times 1}{84 \times 1} = \frac{30}{84}$ $\frac{35}{84} \neq \frac{30}{84}$ These are not equivalent fractions.
	37	a) $\frac{1}{3} + \frac{3}{5}$ (3 and 5 LCM = 15) $\frac{1}{3} = \frac{1 \times 5}{3 \times 5} = \frac{5}{15}$ $\frac{3}{5} = \frac{3 \times 3}{5 \times 3} = \frac{9}{15}$ $\frac{1}{3} + \frac{3}{5} = \frac{5}{15} + \frac{9}{15} = \frac{14}{15}$ b) $\frac{5}{6} + \frac{1}{2}$ (6 and 2 LCM = 6) $\frac{5}{6} = \frac{5 \times 1}{6 \times 1} = \frac{5}{6}$ $\frac{1}{2} = \frac{1 \times 3}{2 \times 3} = \frac{3}{6}$ $\frac{5}{6} + \frac{1}{2} = \frac{5}{6} + \frac{3}{6} = \frac{8}{6}$
		a) $\frac{3}{5} - \frac{1}{2}$ (5 and 2 LCM = 10) $\frac{3}{5} = \frac{3 \times 2}{5 \times 2} = \frac{6}{10}$ $\frac{1}{2} = \frac{1 \times 5}{2 \times 5} = \frac{5}{10}$

38		$\frac{3}{5} - \frac{1}{2} = \frac{6}{10} - \frac{5}{10} = \frac{1}{10}$ b) $\frac{2}{3} - \frac{1}{7}$ (3 and 7 LCM = 21) $\frac{2}{3} = \frac{2 \times 7}{3 \times 7} = \frac{14}{21}$ $\frac{1}{7} = \frac{1 \times 3}{7 \times 3} = \frac{3}{21}$ $\frac{2}{3} - \frac{1}{7} = \frac{14}{21} - \frac{3}{21} = \frac{11}{21}$
39		
40		$\frac{1}{3} = \frac{3}{9} = \frac{4}{12}$
41		 length of blue line is $\frac{1}{2}$ length of the black line is $\frac{1}{2} + \frac{1}{2} + \frac{1}{2} = \frac{3}{2}$
42		$\frac{2}{6} = \frac{1}{3} = \frac{4}{12} = \frac{6}{18} = \frac{10}{30}$
43		Simplifying fractions $\frac{3}{6} = \frac{1}{2}$ $\frac{4}{8} = \frac{1}{2}$ $\frac{5}{10} = \frac{1}{2}$ Since the simplest form for given fractions is same . so these are equivalent fractions.

X	44	$\frac{40}{80} \div \frac{10}{10} = \frac{4}{8} \div \frac{4}{4} = \frac{1}{2}$
	45	$\frac{5}{6}, \frac{1}{2}, \frac{2}{3}, \text{ and } \frac{8}{9}$ $\frac{5}{6}, \frac{1}{2}, \frac{2}{3}, \frac{8}{9} \quad (6, 2, 3, 9 \text{ LCM} = 18)$ $\frac{5 \times 3}{6 \times 3}, \frac{1 \times 9}{2 \times 9}, \frac{2 \times 6}{3 \times 6}, \frac{8 \times 2}{9 \times 2}$ $\frac{15}{18}, \frac{9}{18}, \frac{12}{18}, \frac{16}{18}$ Increasing order = $\frac{1}{2}, \frac{2}{3}, \frac{5}{6}, \frac{8}{9}$
	46	$\frac{3}{4} + \frac{1}{3} + \frac{2}{5} \quad (4, 3, 5 \text{ LCM} = 60)$ $\frac{3 \times 15}{4 \times 15} + \frac{1 \times 20}{3 \times 20} + \frac{2 \times 12}{5 \times 12}$ $\frac{45}{60} + \frac{20}{60} + \frac{24}{60} = \frac{99}{60} \div \frac{3}{3} = \frac{33}{20} = 1 \frac{13}{20}$
	47	Time taken by Rahul = $\frac{11}{7}$ Time taken by Naman = $\frac{15}{8}$ $\frac{11}{7}$ and $\frac{15}{8}$ (7 and 8 LCM = 56) $\frac{11 \times 8}{7 \times 8} = \frac{88}{56} \text{ and } \frac{15 \times 7}{8 \times 7} = \frac{105}{56}$ $\frac{88}{56} < \frac{105}{56} = \frac{11}{7} < \frac{15}{8}$ $\therefore$ Naman took more time by $\frac{17}{56}$ hours.
	48	

49	$1\frac{2}{3} + 3\frac{2}{5}$ $= \frac{5}{3} + \frac{17}{5}$ $= \frac{5 \times 5}{3 \times 5} + \frac{17 \times 3}{5 \times 3}$ $= \frac{25}{15} + \frac{51}{15} = \frac{25 + 51}{15} = \frac{76}{15} = 5\frac{1}{15}$
50	Length of the lace Geetha bought = $\frac{2}{5}$ m Length of the lace Shamim bought = $\frac{3}{4}$ m Total Length of the lace = $\frac{2}{5} + \frac{3}{4}$ $= \frac{8+15}{20}$ $= \frac{23}{20}$ Total lace they bought is $\frac{23}{20}$ metre Perimeter of cloth is 1metre So we need to check if , Length of the lace > perimeter $\frac{23}{20} > 1$ Hence , the lace will be sufficient to cover the border.
51	 Fraction of roti's each child gets = $\frac{\text{total radius}}{\text{number of children}}$ $= \frac{2}{4} = \frac{1}{2}$ Division fact : $2 \div 4 = \frac{2}{4}$ Addition fact : $2 = \frac{2}{4} + \frac{2}{4} + \frac{2}{4} + \frac{2}{4}$ Multiplication fact : $2 = 4 \times \frac{2}{4}$

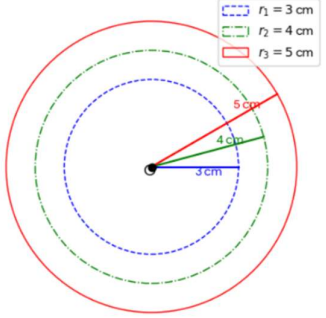
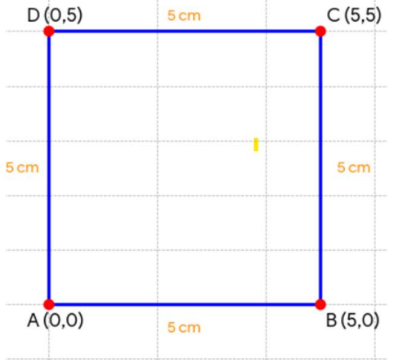
II	52	Part painted by Krishiv = $\frac{2}{3}$ Part painted by his father = $\frac{1}{5}$ Remaining part = $1 - \frac{2}{3} + \frac{1}{5}$ (1, 3, 5 LCM = 15) $= 1 \times \frac{15}{15} - \frac{2 \times 5}{3 \times 5} + \frac{1 \times 3}{5 \times 3}$ $= \frac{15}{15} - \frac{10}{15} + \frac{3}{15}$ $= \frac{15}{15} - \frac{10}{15}$ Part remaining unpainted = $\frac{2}{15}$
	53	If three pizzas are shared equally to four children. How much will each get.  $\frac{3}{4}$ Division fact = $3 \div 4 = \frac{3}{4}$ Addition fact = $3 = \frac{3}{4} + \frac{3}{4} + \frac{3}{4} + \frac{3}{4}$ Multiplication fact = $3 = 4 \times \frac{3}{4}$
	54	Total space painted by both = $\frac{2}{3} + \frac{1}{5}$ $= \frac{2 \times 5}{3 \times 5} + \frac{1 \times 3}{5 \times 3} = \frac{10}{15} + \frac{3}{15} = \frac{13}{15}$ un painted space of the wall = $1 - \frac{13}{15}$ $= \frac{1}{1} - \frac{13}{15} = \frac{1 \times 15}{1 \times 15} - \frac{13 \times 1}{15 \times 1}$ $= \frac{15}{15} - \frac{13}{15} = \frac{15-13}{15}$ $= \frac{2}{15}$ Hence $\frac{2}{15}$th of the wall space is unpainted.
	55	Length of the wire = $\frac{7}{8}$ metre Length of the first piece = $\frac{1}{4}$ metre

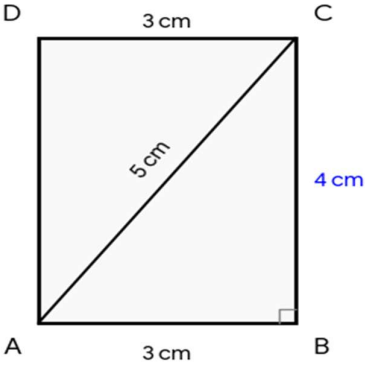
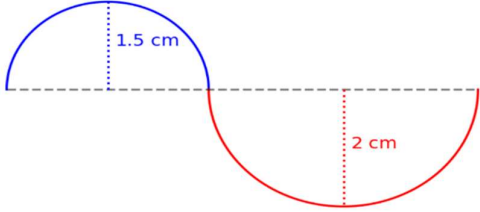
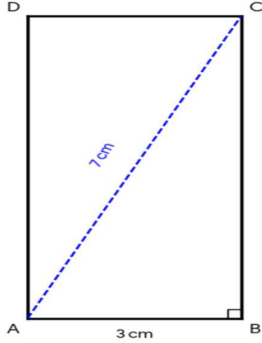
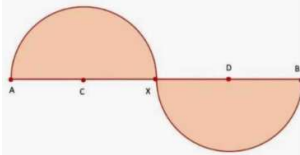
		Consider 'x' metre as the length of the second piece. Length of the wire = length of the first piece + length of the second piece. $\frac{7}{8} = \frac{1}{4} + X$ $X = \frac{7}{8} - \frac{1}{4}$ $X = \frac{7 \times 1}{8 \times 1} - \frac{1 \times 2}{4 \times 2}$ $= \frac{7}{8} - \frac{2}{8} = \frac{7-2}{8}$ $X = \frac{5}{8}$ Hence, the length of the second piece of the wire is $\frac{5}{8}$ metre.
	56	Amount of yellow paint = $\frac{2}{3}$ litres Amount of blue paint = $\frac{3}{4}$ litres Amount of green paint = amount of yellow paint + amount of blue paint $= \frac{2}{3} + \frac{3}{4}$ $= \frac{2 \times 4 + 3 \times 3}{3 \times 4}$ $= \frac{8+9}{12}$ $= \frac{17}{12}$ Volume of green paint Rahim has made is $\frac{17}{12}$ litres.
	57	Compare $\frac{10}{3}$ & $\frac{13}{4}$ LCM of 3 & 4 is 12 $\frac{10}{3} \times \frac{4}{4} = \frac{40}{12}, \quad \frac{13}{4} \times \frac{3}{3} = \frac{39}{12}$ $\frac{39}{12} > \frac{39}{12}$ Namit takes less time Less time = $\frac{10}{3} - \frac{13}{4}$ $= \frac{40}{12} - \frac{39}{12}$ $= \frac{1}{12}$ Namit takes less time, $\frac{1}{12}$ by minutes.

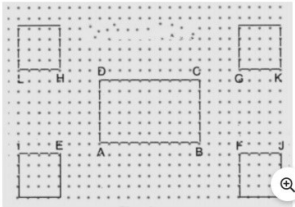
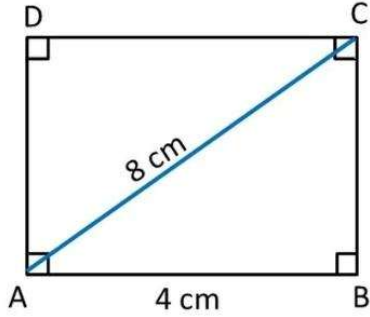
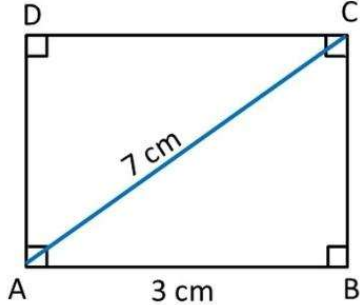
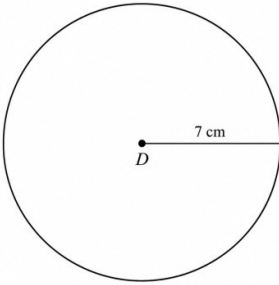
Chapter-8- Playing with constructions

I.	1	A. 4
	2	B. center
	3	D. 3.5cm
	4	B. DABC
	5	C. 90°
	6.	C. they are equal in length
	7	B. 2
	8	C. Wavy wave
	9.	C. 90°
II.	10	Compass
	11	Length × Breadth

	12	Compass
	13	360^0
	14	Radius
	15	Square and rectangle
III.	16	
	a.	Circle
	b.	Compass
	c.	Scale
	d.	Square
	e.	Rectangle
	f.	Rhombus
IV.	17	True
	18	False
	19	True

	20	True
	21	False
V.	22	
	23	Scale Compass Protractor Divider
	24	Number of right angles in rectangle = 4
	25	A circle is a two dimensional shape formed by a curved line are equidistant from a central point
	26	Each angle will be 90°
	27	

28	
29	
30	1) 4cm, 10cm 2) 3cm, 7cm
31	
32	Yes. they are concentric
33.	

34	
35.	ABCD is a square
36	
37	
38.	

VI	39	Diagonal = AC = 7 cm Diagonal = BD = 7 cm $\therefore AC = BD$ A rectangle ABCD is shown with vertices A (bottom-left), B (bottom-right), C (top-right), and D (top-left). The bottom side AB is labeled 6 cm, and the right side BC is labeled 4 cm. Diagonal AC is drawn in red and diagonal BD in blue. A legend in the top right corner states: "Diagonal AC ≈ 7.21 cm" and "Diagonal BD ≈ 7.21 cm". A small green square is at vertex A, indicating a right angle.
	40	A rhombus ABCD is shown with vertices A (left), B (bottom), C (right), and D (top). All four sides are labeled 4 cm. Name of the shape is Rhombus
	41	A rectangle ABCD is shown with vertices A (bottom-left), B (bottom-right), C (top-right), and D (top-left). The bottom side AB is labeled 6 cm, and the left side AD is labeled 4 cm. Area of the rectangle = length $\times$ breadth = 6 cm $\times$ 4 cm = 24 cm²

	42	
	43	
VII		
	45	

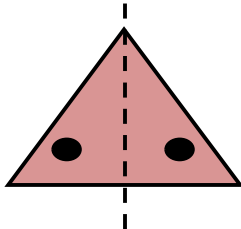
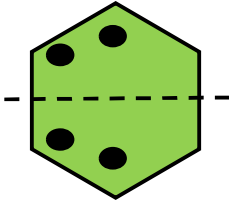
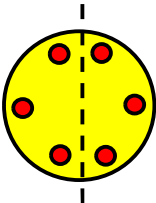
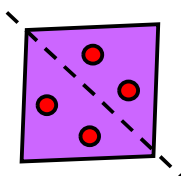
Chapter – 9- Symmetry

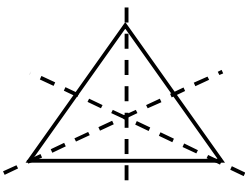
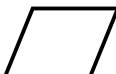
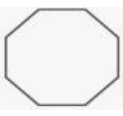
I.	1	B. 2
	2	A. 1
	3	A. Vertically
	4	D. b and c
	5	B. 6
	6	A. square
	7	B. square
II .	8	Lines of symmetry
	9	4
	10	Diagonals
	11	Equilateral triangle

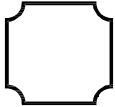
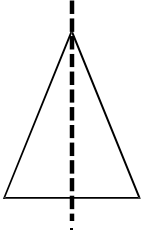
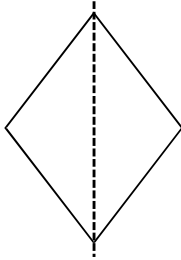
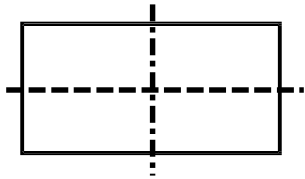
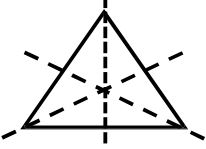
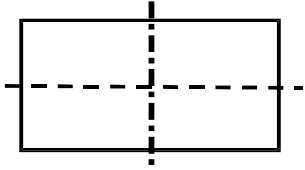
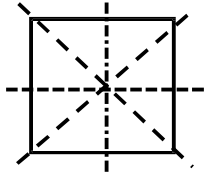
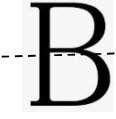
	12	Infinite
	13	6
	14	360^0
	15	Parallelogram
	16	6
	17	3
	18	Zero
	19	Symmetric axis
	20	120^0
	21	X
	22	72^0
	23	5

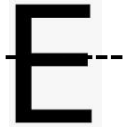
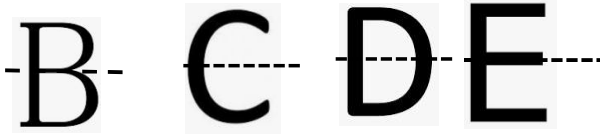
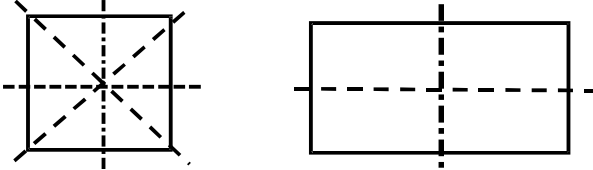
	24	180⁰
	25	180⁰
III.	26 a	Four
	b	Zero
	c	One
	d	Two
	e	Six
IV.	27	True
	28	False
	29	True
	30	True
	31	False

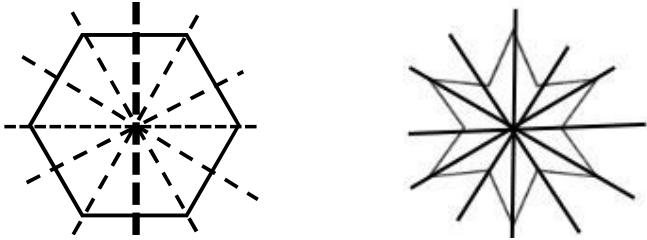
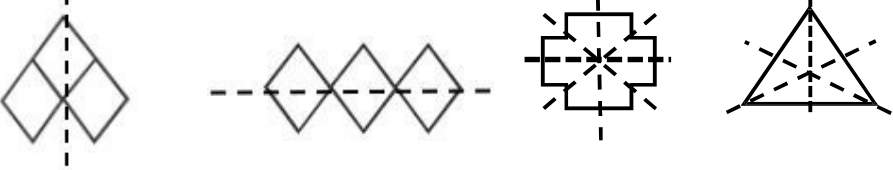
	32	False
	33	False
	34	False
	35	True
V.	36	Symmetrical figures -When a figure is made up of parts that repeat in a definite pattern such figures are called symmetrical figures
	37	Line (axis) of symmetry- A line that cuts a plane figure into two parts that exactly overlap when folded along the line that line is called line of symmetry.
	38	Centre of rotation-When a figure looks exactly the same when it is rotated by an angle about fixed point then the fixed point is called centre of rotation.
	39	Angle of symmetry-When a figure looks exactly the same when it is rotates by an angle about fixed point such an angle is called angle of symmetry.
VI	40	A kite has one line of symmetry
	41	Scalene triangle has no line of symmetry
	42	Circle is symmetrical about its diameter
	43	Letter “ M ”has one line of symmetry

	44	The order of rotational symmetry is 1
	45	Parallelogram has rotational symmetry but does not have line of symmetry
VIII	46	A line that cuts a figure into two parts that exactly over lap when folded along that line is called lines of symmetry
	47	1). 1. Square - Number of lines of symmetry = 4 2). Rhombus – Number of lines of symmetry = 2
	48	1)  2) 
	49	1)  2) 
	50	F, G, J, L
	51	B, C, D, E, H, I, K, O, X (any 4)
	52	A, H, I, M, O, T, U, V, W, X (any 4)
	53	a) I = 2 b) M = 1

54	a)  b) Parallelogram 
55	1) Rhombus - order of rotational symmetry = 2 2) Equilateral triangle - order of rotational symmetry = 3
56	1) Parallelogram - angle of rotational symmetry = 180^0 2) Regular pentagon - angle of rotational symmetry = 72^0
57	a) Angle of rotational symmetry = $360 \div 4 = 90^0$ b) Angle of rotational symmetry = $360 \div 2 = 180^0$
58	a) Angle of rotation of a shape = 90^0 $\therefore$ The order of rotational symmetry = $360^0 \div 90^0 = 4$ b) Angle of rotation of a shape = 120^0 $\therefore$ The order of rotational symmetry = $360^0 \div 120^0 = 3$
59	a) The order of rotational symmetry of a figure = 3 $\therefore$ The angle of rotation of the figure = $360^0 \div 3 = 120^0$ b) The order of rotational symmetry of a figure = 5 $\therefore$ The angle of rotation of the figure = $360^0 \div 5 = 72^0$
60	1) Number of lines of symmetry = 8 Order of rotational symmetry = 8 

		2) Number of lines of symmetry = 4 Order of rotational symmetry = 4 
VIII.	61	a)  b) 
	62	
	63	a)  b)  c) 
	64	a) Yes 

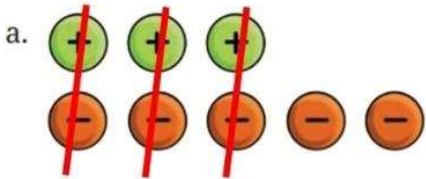
		b) Yes  c) N - No lines of symmetry
IX.	65	i. a, b ii. a iii. d iv. c
	66	H, I, O, X
	67	i. 6 ii. 60° iii. 6
	68	i. 90° ii. 60° iii. 360° iv. 180°
	69	
	70	

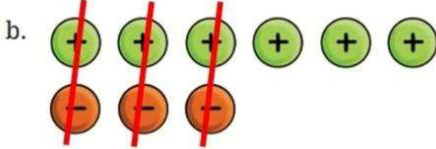
71		a)  - Number of lines of symmetry = 1 b)  - Number of lines of symmetry = 1 c)  - Number of lines of symmetry = 0 d)  - Number of lines of symmetry = Infinite
72		
73		
74		Names of 4 shapes of more than two order of rotational symmetry are, - Square - Equilateral triangle - Pentagon - Hexagon - Circle
Chapter – 10 - The Other Side of Zero		
I.	1	A.<
	2	A.-12

	3	D.Negative numbers
	4	A. Always less than positive numbers.
	5	B. 0
	6	B. -7
	7	C. 0
	8	A. -8^0 C
	9	C. 2
	10	B. -2
II	11	Left
	12	Right
	13	+1
	14	- 14
	15	0
	16	+5
	17	3
	18	5
	19	Positive integer
III.	20 a	(-2)
	b	(-1)
	c	1

	d	0
	e	(-4)
IV	21	False
	22	True
	23	True
	24	False
	25	True
	26	True
V	27	-101, -102, -103,.....-148,-149
	28	∞
	29	Profit = +50 Loss = -30
	30	
	31	Positive numbers- 1,2,3 Negative numbers - -1,-2,-3
	32	-1
VI	33	(+25 m) deep (-45 m) height

34	a) 4 less than -1  d) 5 more than -2 																		
35	i) $3+(0+9)=(3+0)+9$ $3+9=3+9$ $12=12$ This statement is true. ii) $34+\{90+(-11)\}=(34+90)+(-11)$ $34+\{90-11\}=124-11$ $34+79=113$ $113=113$ This statement is true																		
36	<table border="1" data-bbox="597 1197 909 1480"><tr><td>-3</td><td>1</td><td>2</td></tr><tr><td>4</td><td></td><td>0</td></tr><tr><td>-1</td><td>3</td><td>-2</td></tr></table> Bordersum is= 0 <table border="1" data-bbox="1068 1182 1372 1480"><tr><td>-6</td><td>-5</td><td>-1</td></tr><tr><td>-4</td><td></td><td>-8</td></tr><tr><td>-2</td><td>-7</td><td>-3</td></tr></table> Bordersum is=1	-3	1	2	4		0	-1	3	-2	-6	-5	-1	-4		-8	-2	-7	-3
-3	1	2																	
4		0																	
-1	3	-2																	
-6	-5	-1																	
-4		-8																	
-2	-7	-3																	
37	i) Starting floor = -1 Button pressed in the lift =(-4) Expression = $(-1)+(-4)$ = -5 ii)) Starting floor = -8 Button pressed in the lift = +3 Expression = $(-8)+(+3)$ = -5																		

	38	i) Given that the depth is positive 35 metres depth is expressed as +35 metres depth ii) Since depth is positive height would be the opposite so 95 metres height is represented as - 95 metres depth.
VII.	39	1) $79 - 68 + 28 - (-32)$ $= 79 - 68 + 28 + 32$ $= 79 + 28 + 32 - 68$ $= 139 - 68$ $= 71$ 2) $153 + 218 - \{29 - (367)\}$ $= 153 + 218 - \{29 - 367\}$ $= 153 + 218 - \{-338\}$ $= 153 + 218 + 338$ $= 709$
	40	$B = (-9)$ $C = (-6)$ $F = (+2)$ $G = (+6)$ $H = (+12)$
	41	a) Cancelling the tokens a.  does the attendant is at (-2) floor

		and the statement is $(+3)+(-5)=(-2)$ b) Cancelling the tokens b.  Does the attendant is at minus 3 floor and the statement is $(-6) +(-3)=+3$
42		Credits = Rs 30 + Rs 40 + Rs 50 = Rs 120 Debits = Rs 40 + Rs 50 + Rs 60 = Rs 150 Balance = Credits - Debits = 120 - 150 = - 30 rupees Therefore you are bank account balance is -30 Rupees
43		Your bank account balance now is Rs. 1. As noted by “Debits = ₹ 1 + ₹ 2 + ₹ 4 + ₹ 8 + ₹ 16 + ₹ 32 + ₹ 64 + ₹ 128 = ₹ 255.” • Total Debits: Rs. 1 + Rs. 2 + Rs. 4 + Rs. 8 + Rs. 16 + Rs. 32 + Rs. 64 + Rs. 128 = Rs. 255 • Single Credit: Rs. 256 According to the net formula is: “Final balance = ₹255 – ₹255 + ₹256 = ₹256.” (Starting from 0, it behaves as $0 - 255 + 256$). • Final Balance Formula: Initial Balance - Total Debits + Credit • Calculation: $0 - 255 + 256 = \text{Rs. } 1$
44		Maintaining a positive bank balance helps you avoid overdraft fees, keeps your credit score healthy, and gives you a safety net for emergencies. It also means you're not relying on borrowed money to cover everyday expenses.

