

WINTER BREAK HOMEWORK(2017-18)

CLASS IX

SUBJECT – MATHEMATICS

1. Find six rational number between 3 and 4.
2. Show that $0.235353535\dots$ can be expressed in the form of p/q where p and q are integers and $q \neq 0$
3. Factorise $x^3 - 2x^2 - x + 2$
4. Find the remainder when $x^3 + 3x^2 + 3x + 1$ is divided by i) $x + 1$
ii) $x + \frac{1}{2}$ iii) $5 + 2x$.
5. Draw the graph of linear equation $x - y = 2$
6. Write Euclid's axioms and postulate.
7. Evaluate i) 99^3 ii) 102^3
8. Find mean, median and mode of:
 $2,3,4,5,0,1,3,3,4,3$
9. Draw a bar graph to represent the polling results:

Political party	A	B	C	D	E	F
Seats won	75	55	37	29	10	37

10. The diameter of the base of a cone is 10.5 cm and its slant height is 14cm.
find i) radius of base ii) total surface area.
11. An isosceles triangle has perimeter 30 cm and each of equal side is 12cm.
find the area of triangle.
12. Find the area of quadrilateral ABCD in which $AB = 3\text{cm}$, $BC = 4\text{cm}$, $CD = 4\text{cm}$, $DA = 5\text{cm}$ and $AC = 5\text{cm}$.
13. A field in the shape of trapezium whose parallel sides are 25m and 10m. The non-parallel sides are 14m and 13m. Find the area of the field.
14. State and prove midpoint theorem and its converse.
15. Prove that sum of angles of triangle is 180°
16. Construct a triangle ABC in which $BC = 7\text{cm}$, $\angle B = 75^\circ$ and $AB + AC = 13\text{cm}$
17. Construct a triangle ABC in which $\angle Y = 30^\circ$, $\angle Z = 90^\circ$ and $XY + YZ + ZX = 11\text{cm}$
18. Construct the $\triangle ABC$ in which $BC = 8\text{cm}$, $\angle B = 45^\circ$, and $AB - AC = 3.5\text{ CM}$.
19. In triangle ABC, E is the midpoint of median AD. Show that $\text{ar}(\triangle BED) = \frac{1}{4} \text{ar}(\triangle ABC)$
20. In quadrilateral ABCD, $AC = AD$ and AB which bisects $\angle A$. Show that $\triangle ABC \cong \triangle ABD$.

