

ASSIGNMENT MATHEMATICS Class 9

1. Draw the graph of $x+y = 7$ and $x-y=2$.
2. Find the value of a if the point $(3,4)$ lies on the graph of the equation $3y = ax + 7$.
3. Give the geometrical representation of $2x + 9 = 0$ as an equation
(a) in one variable (b) in two variables
4. Show that the bisectors of angles of a parallelogram form a rectangle.
5. The angles of a quadrilateral are in the ratio 3:5:9:13. Find all the angles.
6. Show that the diagonals of a square are equal and bisect each other at right angles.
7. Show that the line segment joining the mid points of two sides of a triangle is parallel to the third side.
8. Show that the parallelograms on the same base and between same parallels are equal in area.
9. D and E are points on sides AB and AC respectively of triangle ABC such that $\text{ar}(\triangle ABC) = \text{ar}(\triangle EBC)$. Prove that DE is parallel to BC.
10. ABCD is a trapezium with AB parallel to DC. A line parallel to AC intersects AB at X and BC at Y. Prove that $\text{ar}(\triangle ADX) = \text{ar}(\triangle ACY)$.
11. You are given a circle. Give a construction to find its center.
12. Prove that the quadrilateral formed by the internal angle bisectors of any quadrilateral is cyclic.
13. If non-parallel sides of a trapezium are equal, prove that it is cyclic.
14. Prove that cyclic parallelogram is rectangle.
15. Construct a triangle ABC in which $BC = 7$ cm, angle B = 75 degrees and $AB + AC = 13$ cm.
16. Construct a triangle XYZ in which angle Y = 30 degrees and angle Z = 90 degrees and $XY + YZ + ZX = 11$ cm.
17. The paint in a certain container is sufficient to paint an area equal to 9.375 sq m. How many bricks of dimensions 22.5cm x 10cm x 7.5cm can be painted out of this container.
18. The inner diameter of a circular well is 3.5m. It is 10m deep. Find:
(a) its inner curved surface area
(b) the cost of plastering its curved surface area at the rate of Rs 40 per sq m.
19. A conical tent is 10m high and radius of its base is 24m. Find:
(a) Slant height of the tent.
(b) Cost of the canvas required to make the tent, if the cost of 1 sq m canvas is Rs 70.
20. Find the radius of a sphere whose surface area is 154 sq cm.
21. A godown measure 40m x 25m x 15m. Find the maximum number of wooden crates each measuring 1.5m x 1.25m x 0.5m that can be stored in the godown.
22. Find the volume of a sphere whose surface area is 154 sq cm.
23. A right triangle ABC with sides 5cm, 12cm and 13cm is revolved about the side 12cm. Find the volume of the solid so obtained.
24. The following observations have been arranged in ascending order. If the median of the data is 63, find x : 29, 32, 48, 50, x , $x+2$, 72, 78, 84, 95
25. The following number of goals were scored by a team in a series of 10 matches : 2, 3, 4, 5, 0, 1, 3, 3, 4, 3 Find the mean, median and mode of the score.
26. 1500 families with 2 children were selected randomly and the following data were recorded

No of girls in a family	2	1	0
No. of families	475	814	211

Compute the probability of a family, choosen at random having

(a) 2 girls (b) 1 girl (c) no girl

27. A random survey of number of children of various age groups in a park was found as follows:

Age(in years)	No of Children
1-2	5
2-3	3
3-5	6
5-7	12
7-10	9
10-15	10
15-17	4

Draw the histogram of the above data.

28. Some poor children use recycled paper to make conical party caps. With radius 7cm and slant height 15cm and sell it on a street stall. How much would they earn profit on selling 50 caps? The selling price of cap is 50 paise per sq cm while it cost Rs 10 per 100 sq cm. Which values are depicted by the children?

29. If a line intersects two concentric circles with centre O at A, B, C and D. Prove that $AB = CD$.

30. ABCD is a parallelogram and AP and CQ are perpendicular from vertices A and C on diagonal BD. Show that:

(a) triangle APB is congruent to triangle CQD

(b) $AP = CQ$