

- Equation of line passing through $(1, -1)$, $(0, 0)$ and $(-1, 1)$ is
(A) $x - y = 0$ (B) $x + y = 0$ (C) $x + 2y = 0$ (D) $x - 2y = 0$
- ΔDEF is formed by joining the midpoints of sides AB , BC and CA respectively of ΔABC . If area of quadrilateral = 40 cm^2 , then area of $\Delta ABC = \underline{\hspace{2cm}} \text{ cm}^2$
(A) 80 (B) 40 (C) 20 (D) 60
- $ABCD$ is a cyclic quadrilateral in which AC and BD are its diagonals, if $\angle DBC = 55^\circ$ and $\angle BAC = 45^\circ$, then $\angle BCD =$
(A) 60° (B) 70° (C) 80° (D) 75°
- If the radius of a hemi sphere is doubled, the ratio of the total surface area of the first sphere to that of the second is _____
(A) 1:4 (B) 4:1 (C) 1:2 (D) 2:1
- The probability of drawing a spade or black queen from a well shuffled pack of 52 cards is
(A) $\frac{15}{52}$ (B) $\frac{7}{26}$ (C) $\frac{1}{13}$ (D) $\frac{2}{13}$
- Mean of first 5 composite numbers is
(A) 11.6 (B) 5.8 (C) 2.9 (D) 7.4
- The condition that the equation $ax + by + c = 0$ does not represent a linear equation in two variables is
(A) $a \neq 0, b = 0$ (B) $a = 0, b \neq 0$ (C) $a = 0, b = 0$ (D) $a \neq 0, b \neq 0$
- A hemisphere, cylinder and a cone stand on the same base and have same height, the ratio of their volumes is
(A) 2:1:3 (B) 1:3:2 (C) 1:2:3 (D) 2:3:1

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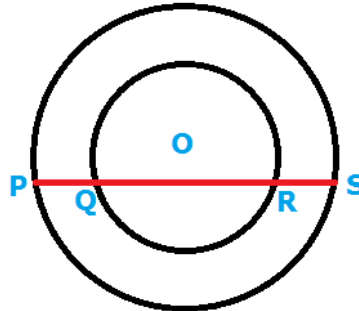
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9. Show median divides the triangle into two triangles equal in area.
10. The number 42, 43, 44, 44, $(2x+3)$, 45, 45, 46, 47 have been put in the ascending order if the median is 45, find x . hence find the mode of above data.
11. Parallelogram ABCD and rectangle ABEF have the same base AB and also have equal areas show that the perimeter of the parallelogram is greater than that of the rectangle.
12. In figure two concentric circles have centre O and radius r . If $PS = 24$ cm, $BC = 16$ cm. Find PQ.



13. Find mean salary of 40 workers of a factory. (Rs 367.5)

Salary per worker (in Rs)	200	300	400	500	600
No. of workers	5	15	10	8	2

14. Two cubes of volume 125 cm^3 each are joined edge to edge. Find total surface area of resultant cuboid.

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Section C 3 Marks Each

15. Draw the graph of the equation $y = \frac{3}{5}x + \frac{1}{5}$. From the graph find the coordinates of the points where the line cuts x axis.
16. Write equation of a line passing through the points (3, 2) and (7, 3)
17. Prove that angle in a semicircle is a right angle.
18. A right triangle with sides 3cm, 4cm and 5cm is revolved about 4cm side. Find the volume of solid generated.
19. Construct a triangle ABC whose perimeter is 12 cm and base angles are 30° and 60° .
20. Two chords AB and CD of lengths 5cm and 11cm respectively of a circle are parallel to each other and are on opposite sides of its centre if the distance between AB and CD is 6cm. Find the radius of the circle.
21. A solid right circular cylinder of radius 7cm and height 10cm is melted to make a cone of height 3 times that of cylinder find the curved surface area of the cone.
22. Here is an extract from a mortality table.
- (i) Based on this information, what is the probability of a person 'aged 60' of dying within a year?
- (ii) What is the probability that a person 'aged 61' will live for 4 years?

Age	60	61	62	63	64	65
No. of Persons	1200	850	700	525	350	250

23. In an election seats won by various political parties are as follows:

Political Party	A	B	C	D	E	F
Seats Won	70	58	37	39	25	5

Draw a bar graph for the above data.

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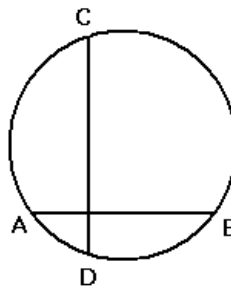
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24. Prove midpoint of hypotenuse of a right triangle is equidistant from the three vertices.

OR

If two chords AB and CD of a circle intersect at right angle, prove that arc CA + arc DB = arc AD + arc BC = semicircle.



Section D 4 Marks Each

- 25. Represent $3x + 7 = 0$ geometrically taking as equation in (a) 1 variable (b) 2 variables.
- 26. Work done by a body on application of a constant force is directly proportional to the distance travelled by the body. Express this in the form of an equation in two variables. Draw the graph of the equation taking constant force as 10 units. Find from the graph the work done when the distance travelled by the body is 5 units.
- 27. Prove the angle subtended by an arc at the centre of a circle is double the angle subtended by it at any point on the remaining part of the circle.
- 28. Diagonals of quadrilateral ABCD intersect each other at O, if $BO = DO$ and $AB = CD$ show ABCD is a parallelogram.
- 29. ABCD is a trapezium in which $AB \parallel DC$, $DC = 40$ cm and $AB = 50$ cm. If X and Y are, respectively the mid-points of AD and BC, find $\frac{\text{ar}(\text{DCYX})}{\text{ar}(\text{XYBA})}$

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MM 90

Mathematics Mock Test IX-2013

Time 3 h

30. Construct a triangle ABC in which angle B = 90° , AB – AC = 3 cm, BC = 7.5cm

OR

An equilateral triangle if its altitude is 4.5 cm.

31. Prove quadrilateral formed by the angle bisectors of a cyclic quadrilateral is cyclic.
32. A solid cylinder has total surface area of 462 square cm. its curved surface area is one third of its total surface area. Find the volume of the cylinder.
33. A boy built a cubical water tank in his house. The top of water tank is covered with a lid. He wants to cover the inner surface of the tank including the lid with square tiles of side 25 cm. If each inner edge of water tank is 4 metre long and tiles cost Rs 480 per dozen, then find the total amount required for covering the tank with tiles.

OR

A village of 4000 persons requires 150 litres of water per day. It has a tank measuring 20 m × 15 m × 6 m. For how many days will the water of this tank last? Give the measures which can be taken to avoid the wastage of water.

34. Draw a histogram to represent the following data.

CI	20-30	30-60	60-80	80-140	140-150
Frequency	5	18	6	60	8

OR

Draw a frequency polygon (without histogram) to represent the following data.

CI	20-29	30-39	40-49	50-59	60-69
Frequency	3	12	8	20	7

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