

SUMMATIVE ASSESSMENT – II, MATHEMATICS, Class – IX

SAMPLE QUESTION PAPER

Time allowed: 3 hours

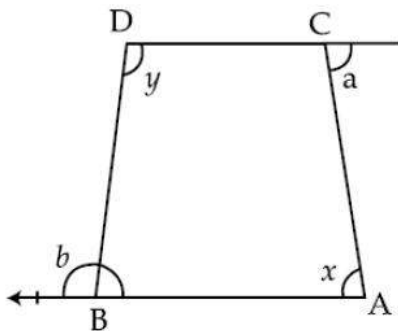
Maximum Marks: 90

SECTION – A

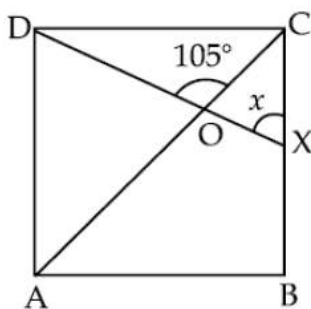
- 1 In $\triangle ABC$, E is the midpoint of median AD. Then what will be the ratio of areas of $\triangle BED$ to area of $\triangle ABC$
- 2 What is the maximum number of points that lie on the graph of the linear equation in two variables
- 3 What is the radius of largest sphere that is curved out of a cube of side 7 cm
- 4 In a cricket match, a batsman hits a boundary 8 times out of 40 balls he plays. Find the probability that he didn't hit boundary

SECTION – B

- 5 The mean weight per student in a group of 7 students is 55 kg. The individual weights of 6 of them in kg are 52, 54, 55, 53, 56, 54. Find the weight of the seventh student.
- 6 The sides BA and DC of quadrilateral ABCD are produced as shown in the figure. Prove that $x + y = a + b$.



- 7 In the figure, ABCD is a square. A line segment DX cuts the side BC at X and the diagonal AC at O such that $\angle COD = 105^\circ$. Find the value of x .

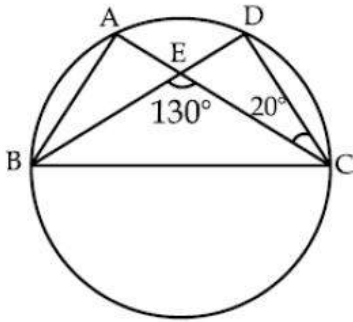


- 8 D, E, F are respectively the mid point of the sides BC, CA and AB of triangle ABC. Show that.

$$ar(\triangle DEF) = \frac{1}{4} ar(\triangle ABC).$$

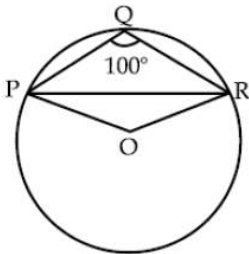
- 9 Curved surface area of a right circular cylinder is 4.4 m^2 . If the radius of the base of the cylinder is 0.7m, find its height. [use $\pi = \frac{22}{7}$].

- 10 In the figure, A, B, C, D are four points on a circle. AC and BD intersect at a point E such that $\angle BEC = 130^\circ$ and $\angle ECD = 20^\circ$. Find $\angle BAC$.



SECTION – C

- 11 In the figure $\angle PQR = 100^\circ$. Where P, Q, R are points on a circle, with centre O. Find $\angle OPR$.



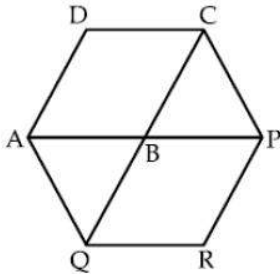
- 12 Draw the graph of the equation $2x - 3y = 5$. From the graph, find the value of y when $x = 4$.
- 13 Draw the graph of the equation $3x + 2y = 6$. Find the area of the triangle formed with the line, x axis and y axis.
- 14 Show that the bisectors of the angles of a parallelogram form a rectangle.
- 15 Prove that the diagonals of a rectangle are equal.
- 16 Prove that equal chords of a circle, subtend equal angles at the centre.
- 17 Construct a right triangle whose base is 6 cm and the difference of its hypotenuse and the other side is 8 cm.
- 18 It costs Rs. 2200 to paint the inner curved surface of a cylindrical vessel 10m deep. If the cost of painting at the rate of Rs. 20/m², find the radius of the base.
- 19 What length of tarpaulin 3 m wide will be required to make conical tent of height 8 m and base radius 6 m? Assume that the extra length of material that will be required for stitching margins and wastage in cutting is approximately 20 cm. [use $\pi = \frac{22}{7}$]
- 20 The following observations have been arranged in ascending order where median of the data is : 63, 29, 32, 48, 50, x, x + 2, 72, 78, 84, 95. Find the mean of the data.

SECTION – D

- 21 The taxi fare in a city is as follows : For the first kilometer, the fare is Rs 8 and for the subsequent distance it is Rs 5/km. Taking the distance covered as x km and total fare as Rs y, write a linear equation for this information, and draw its graph.

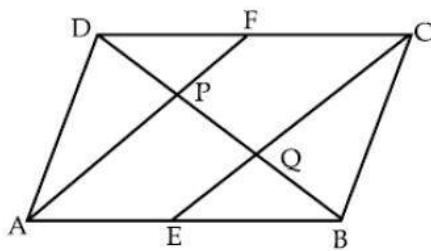
- 22 The side AB of a parallelogram ABCD is produced to any point P. A line through A and parallel to CP meets CB produced at Q and then parallelogram PBQR is completed. Show that.

$$\text{ar (ABCD)} = \text{ar (PBQR)}$$



- 23 PQRS and ABRS are parallelogram on the same base SR and same parallels and X is any point on side BR. Show that $\text{ar}(\text{AXS}) = \frac{1}{2} \text{ar}(\text{PQRS})$

24. In a parallelogram ABCD, E and F are the mid points of sides AB and CD respectively. Show that the line segment AF and EC trisects the diagonal BD.



- 25 If two intersecting chords of a circle make equal angles with the diameter passing through their point of intersection, Prove that the chords are equal.

- 26 A right circular cone is 8 cm high and radius of its base is 2 cm. The cone is melted and recast into a sphere. Determine the diameter of the sphere.

- 27 The ratio between the curved surface area and the total surface area of a right circular cylinder is 1 : 2. Find the volume of the cylinder if its total surface area is 616 cm^2 .

- 28 Draw Histogram to represent following

Class Interval	5-10	10-15	15-25	25-45	45-75
f	6	12	10	8	15

- 29 Metal spheres, each of radius 2 cm are packed into a rectangular box of dimensions $16 \text{ cm} \times 8 \text{ cm} \times 8 \text{ cm}$. When 16 spheres are packed in the box, it is filled with preservative liquid. Find the volume of this liquid to the nearest integer [use $\pi = 3.14$]

- 30 Draw the graph of the linear equation $2x + 3y = 12$

(i) Write the co-ordinates of a point where graph intersects x -axis.

(ii) From the graph show whether points $(3, 2)$ and $(-3, 6)$ are the solution of the equation

- 31 PQ is a diameter of circle and XY is chord equal to the radius of the circle. PX and QY when extended intersect at E. Prove that $\angle PEQ = 60^\circ$