

SUMMATIVE ASSESSMENT – II, MATHEMATICS, Class – IX

SAMPLE QUESTION PAPER

Time allowed: 3 hours

Maximum Marks: 90

SECTION – A

- 1 An equation of type $y = mx$ passes through which point?
- 2 Express $(x/4) - 3y = 7$ in the form of $ax + by + c = 0$
- 3 Two consecutive angles of a parallelogram are $(x + 60)^\circ$ and $(2x + 30)^\circ$. What special name can you give to this parallelogram?
- 4 If a wooden box of dimensions 8 m x 7 m x 6 m is to carry boxes of dimensions 8 cm x 7 cm x 6 cm, then find the maximum number of boxes that can be carried in the wooden box.

SECTION – B

- 5 In the given figure 01, AB is a chord of a circle with centre O. If $\angle AOB = 60^\circ$, prove that $AB = \frac{1}{2}$ diameter.
- 6 Draw a line segment XY of length 96 mm. Using ruler and compass, measure the length $\frac{1}{2}$ XY.
- 7 In Fig-02; PQTS and PTRQ are two parallelograms. Show that $\text{ar}(\triangle PST) = \text{ar}(\triangle PQT) = \text{ar}(\triangle QTR) = \frac{1}{3} \text{ar}(\text{PQRS})$

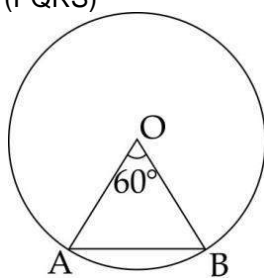


Fig-01

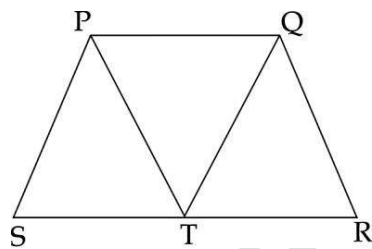


Fig-02

- 8 A solid right circular cylinder has radius of 14 cm and height of 8 cm. Find its curved surface area and total surface area.
- 9 Mean of 36 observations is 12. One observation 47 was misread as 74. Find the correct mean.
- 10 The probability of guessing the correct answer to a certain question is $x/2$. If probability of not guessing the correct answer is $2/3$, then find x .

SECTION – C

- 11 Verify that which of the followings are solution of equation $x + 2y = 7$; $(0, 2)$, $(0, -2)$, $(-2, 0)$, $(2, 1)$, $(3, \frac{1}{2})$ and $(5, 0)$.
- 12 A circle with radius r is drawn. Write coordinates of points where it meets the axes. Also write the equation of AC and BD. Find its radius also. [see Fig-03]

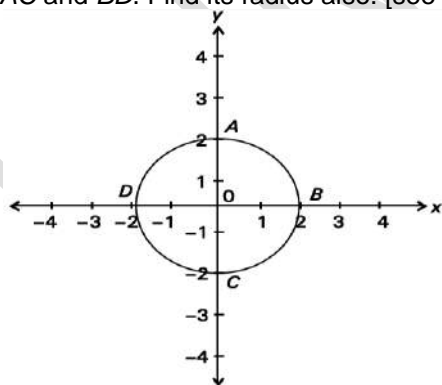


Fig-03

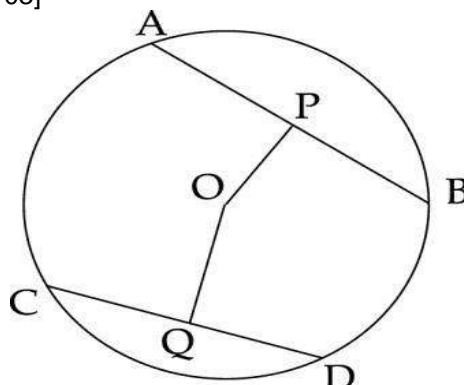


Fig-04

- 13 In the figure, AB and CD are two chords of a circle with centre O at distances of 6 cm and 8 cm respectively from O. If the radius of the circle is 10 cm, find the lengths of the chords. [see Fig-04]
- 14 Construct $\triangle AJK$ in which $JK = 8$ cm, $\angle J = 60^\circ$ and $AJ - AK = 1.5$ cm.
- 15 Construct a right angle triangle whose base is of length 4 cm and length of perpendicular is 3 cm. Now construct perpendicular bisectors of any two sides. Where these bisectors intersect?
- 16 In the figure Fig-05, $\triangle ABC$ is an equilateral triangle with each side of length 10 cm and O is a point in the interior of the triangle. If P, Q and R are mid-points of AO, BO and CO respectively, then find the perimeter of $\triangle PQR$.

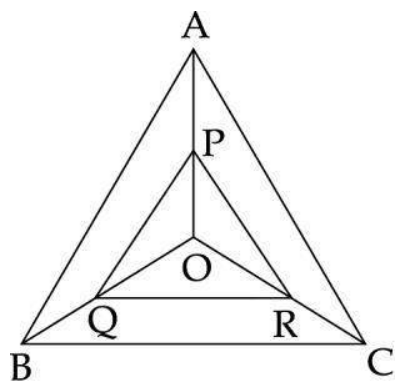


Fig-05

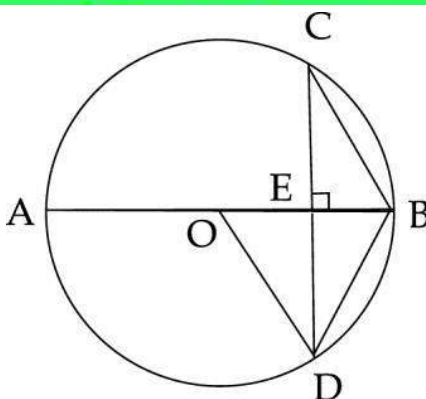


Fig-06

- 17 In the given figure Fig-06, if O is the centre of the circle, $BD \perp OD$ and $CD = AB$, find $\angle CAB$ and $\angle BCD$.
- 18 There is a solid cube which has been cut into two cuboids of equal volumes. Find the ratio of the total surface area of one of the cuboids to that of the given cube.
- 19 Find the mean of the first 10 natural numbers. Is it equal to their median ?
- 20 the class marks of distribution are 47,52,57,62,67,72,77,82 determine the class size, class
 Class size = Difference between class marks of two consecutive classes. = $52 - 47 = 5$
 Lower-class limit = class marks - $1/2$ of class size = $47 + 2.5 = 49.5$
 Upper class limit = class marks + $1/2$ of class size = $52 + 2.5 = 54.5$
 Since, the class-limits form a continuous frequency distribution; the true class limits and the class-limits are the same
- 21 A, B and C are three different places. Cost of a ticket for going from A to B is Rs. x, and that of from B to C is Rs. y. A man pays Rs. 1100 for 2 tickets from A to B and 3 tickets from B to C. Write the given data in form of a linear equation in two variables. Also, represent it graphically.
- 22 Draw the graphs of the following equations on the same graph sheet: $x = 4$, $x + 1 = 0$, $y = 2$, $y + 3 = 0$. Also, find the area enclosed between these lines
- 23 Find the missing frequencies in the following frequency distribution whose mean is 50
- | | | | | | | |
|---|----|-------|----|-------|----|--------------------------------|
| X | 10 | 30 | 50 | 70 | 90 | |
| F | 17 | f_1 | 32 | f_2 | 19 | Ans: $f_1 = 28$ and $f_2 = 24$ |
24. Draw a line segment $PQ = 8.4$ cm Divide PQ into four equal parts using ruler and compass.
- 25 Give reasons :
- Construction of an angle of 22.5° is possible with the help of ruler and compass.
 - It is not possible to construct a $\triangle ABC$, given that $BC = 7$ cm, $\angle B = 45^\circ$ and $AB - AC = 10$ cm
 - We can construct an angle of 67.5° using ruler and compass.
 - Construction of $\triangle DEF$, if $EF = 5.5$ cm, $\angle E = 75^\circ$ and $DE - DF = 2$ cm is possible
- 26 PQRS is a trapezium with $PQ \parallel RS$. X and Y are points on PS and RQ such that $SX = XP$ and $RY = YQ$. If $SR = 40$ cm and $PQ = 60$ cm, find the ratio $ar(SRYX) : ar(PQRS)$.
- 27 Volume of a right circular cone is 78848 cm³. Its diameter is 56 cm. Find its total surface area
- 28 A hemispherical bowl is made of 0.50cm thick brass. The inner radius of the bowl is 6cm. Find the outer curved surface area and volume of the bowl.
- 29 A conical tent has the area of its base as 154 Sq m and its curved surface area as 550 sq m. Find the volume of the tent.
- 30 The distances (in km) of 40 teachers from their residence to the school are given below :
 5, 19, 7, 12, 3, 10, 9, 14, 10, 12, 7, 2, 20, 17, 8, 9, 15, 18, 3, 6, 11, 11, 5, 15, 15, 12, 12, 15, 7, 17, 15, 7, 12, 16, 18, 6, 20, 2, 3, 2
 Find the probability that a teacher selected at random,
 (a) lives in less than 7 km from her school.
 (b) lives at most 15 km from her school.
 (c) lives within 1 km from her school.
- 31 Prepare a continuous grouped frequency distribution from the following data and hence construct the histogram using this table :
- | | | | | | |
|-----------|---|----|----|----|----|
| Mid-point | 5 | 15 | 25 | 35 | 45 |
| Frequency | 4 | 8 | 13 | 12 | 6 |