

## SUMMATIVE ASSESSMENT – II, MATHEMATICS, Class – IX

### SAMPLE QUESTION PAPER

Time allowed: 3 hours

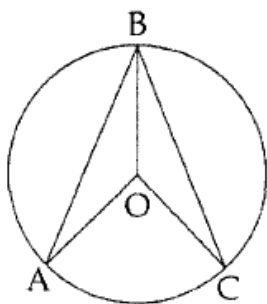
Maximum Marks: 90

#### SECTION – A

- 1 If the point (3, 4) lies on the graph of linear equation  $3y = ax + 7$ , find the value of  $a$ .
- 2 Linear equation  $x - 2 = 0$  is parallel to which axis ?
- 3 Area of  $\triangle ABC$  is  $14 \text{ cm}^2$ . If  $AD$  is median to side  $BC$ , find area ( $\triangle ACD$ ).
- 4 Calculate the amount of air inside a conical tent with base radius 7 m and height 12 m.

#### SECTION – B

- 5 In a quadrilateral  $EFGH$ ,  $\angle EHG$  is thrice of  $\angle HGF$ ,  $\angle GFE = 70^\circ$  and  $HE \perp EF$ . Find the measures of  $\angle EHG$  and  $\angle HGF$ .
- 6 Construct an angle of  $135^\circ$  at the initial point of a given ray.
- 7 In the given figure,  $AB$  and  $BC$  are two chords equidistant from the centre  $O$ . Prove that  $BO$  bisects  $\angle ABC$ .



- 8 The diameter of a metallic ball is 4.2 cm. If the density of the metal is  $8.9 \text{ g per cm}^3$ , find the mass of the ball.
- 9 Two coins were tossed 20 times. Each time the number of "Heads" occurring was noted down as follows : 0, 1, 1, 2, 0, 1, 2, 0, 0, 1, 2, 2, 0, 2, 1, 0, 1, 1, 0, 2.  
Prepare a frequency distribution table for the data.
- 10 Given below are the seats won by different political parties in a polling outcome of a state assembly elections.

Political Party	A	B	C	D	E	F
Seats Won	75	55	37	29	10	37

What is the probability that the party selected have

(i) more than 30 seats. (ii) less than 20 seats.

#### SECTION – C

- 11 The auto fare in a city are as follows : For the first kilometer it is Rs. 10 and for subsequent distance is Rs. 8 per km. Taking the distance as  $y$  km. and total fare as Rs.  $x$ , write a linear equation for this and draw the graph. Also find the fare of 15 km.

12 A fraction becomes  $\frac{1}{4}$  when 2 is subtracted from the numerator and 3 is added to the denominator.

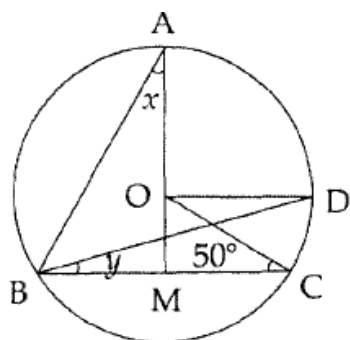
Represent this situation as a linear equation in two variables. Also find two solutions for this.

13 ABCD is a quadrilateral with diagonals AC and BD intersecting at O. If  $\text{ar}(\triangle DOC) = \text{ar}(\triangle AOB)$ ; show that  $\angle BDA = \angle DBC$ .

14 Construct  $\triangle STU$  if sum of the three sides is 11.4 cm and base angles are  $45^\circ$  and  $120^\circ$ .

15 Construct an equilateral triangle of side 5.2 cm each. Now construct angle bisectors of any two angles. Their intersecting point lies where ?

16 O is the centre of a circle in the given figure and  $\angle BCO = 50^\circ$ . Find x and y, if BC is parallel to OD and  $AM \perp BC$ .



17 The diagonals of a rectangle ABCD intersect at O. If  $\angle OAD = 68^\circ$ , then find  $\angle BOC$ .

18 The diameter of garden roller is 1.4 m and it is 2 m long. How much area will it cover in 15 revolutions ( $\pi = \frac{22}{7}$ )

19 Following is the data about the months of births of 40 students in class IX :

Feb, Jan, July, June, March, Feb, Feb, Feb, Nov, Jan, Jan, Dec, May, June, June, July, June, Nov, Dec, June, July, June, August, Dec, June, March, July, July, June, Dec, Sep, March, Jan, Dec, June, Dec, Sep, March, Jan, Nov.

One student is chosen at random. Find the probability that the student chosen :

(a) Was born in the month of June. (b) Was not born in the month of June.

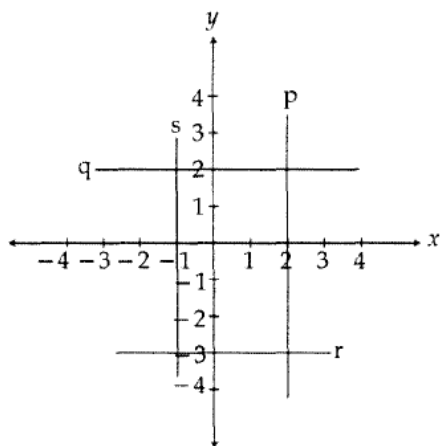
20 For the following information, construct a frequency polygon (without histograms) :

CLASS-MARK	FREQUENCY
5	3
15	15
25	12
35	18
45	9
55	3

### Section- D

21 Water is flowing at the rate of 2.5 km per hour through a cylindrical pipe of radius 7 cm into a rectangular tank of length 25 m and 22 m width. In 5 hrs how much is the rise in level of water in the tank ?

22 Write the equations of the lines drawn in the following graph. Also, find the area enclosed between them.



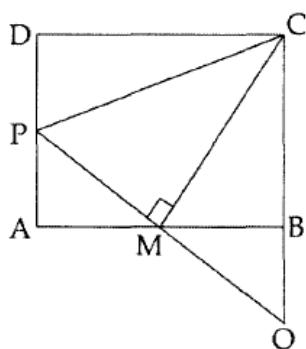
23 You know that the force applied on a body is directly proportional to the acceleration produced in the body. Write an equation to express this situation and plot the graph of the equation, taking constant as 5, force on y-axis and acceleration on x-axis. Also, find acceleration produced in a body, if force applied on it is 20 units.

24. An awareness slogan "SAY NO TO SMOKING" was displayed on one of the walls of the flyover. It is of triangular shape whose dimensions are 4m, 4m and 5m. Construct the above triangle by taking dimensions as 'cm' in place of 'm'. What values are depicted to the people of the country with respect to this slogan?

25 Give reasons :

- (a) Construction of an angle of  $22.5^\circ$  is possible with the help of ruler and compass.
- (b) It is not possible to construct a  $\Delta ABC$ , given that  $BC = 7$  cm,  $\angle B = 45^\circ$  and  $AB - AC = 10$  cm
- (c) We can construct an angle of  $67.5^\circ$  using ruler and compass.
- (d) Construction of  $\Delta DEF$ , if  $EF = 5.5$  cm,  $\angle E = 75^\circ$  and  $DE - DF = 2$  cm is possible

26 ABCD is a square. M is the point on AB such that  $AM = MB$ . P and Q are points on sides AD and extended CB such that  $CM \perp PQ$ . Show that  $ar(\Delta CPM) = ar(\Delta CQM)$ .



- 27 A cubicle water tank is filled by tap water at the rate of 1.4 litres per second. Find the length of an edge of the tank in centimeters if the tank is completely filled in 28 minutes.
- 28 The mean weight of 60 students of a class is 40 kg. The mean weight of boys is 50 kg, while that of the girls is 30 kg. Find the number of boys and girls in the class.
29. (a) State Angle Sum Property of a triangle.  
(b) Is it possible to construct  $\triangle ABC$  if perimeter of the triangle is 11 cm, base angles  $\angle A = 60^\circ$  and  $\angle B = 70^\circ$   
(c) Is it possible to construct  $\triangle EFG$ , if  $EF + FG + GE = 11$  cm  $\angle E = 105^\circ$  and  $\angle F = 90^\circ$   
(d) Is it possible to construct  $\triangle XYZ$  if perimeter is 12.5 cm,  $\angle X = 75^\circ$  and  $\angle Y = 30^\circ$
- 30 The length and breadth of a hall are in the ratio 4 : 3 and its height is 550 cm. The cost of decorating its wall on diwali (including doors and windows) at Rs 6.60 per square metres is ₹ 5082. Find the length and breadth of the room.

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Month of Birth	Number of Students
January	3
February	4
March	2
April	2
May	5
June	1
July	2
August	6
September	3
October	4
November	4
December	4

- If one student is chosen at random, find the probability that the student is born :
- (a) in the later half of the year (b) in the months having 31 days  
(c) in the month having 30 days