

SUMMATIVE ASSESSMENT – II, MATHEMATICS, Class – IX

SAMPLE QUESTION PAPER

Time allowed: 3 hours

Maximum Marks: 90

SECTION – A

- 1 In a cylinder if radius is doubled and height is halved what will be its new curved surface area
- 2 What is the abscissa of all the points on the x-axis
- 3 Give the equations of two lines passing through (2, 14)
- 4 Base area of a cylinder is 154cm^2 and height is 5 cm. find its volume?

SECTION – B

- 5 A die is thrown 500 times, the frequency of outcomes 1, 2, 3, 4, 5 and 6 are noted in the following frequency distribution table :

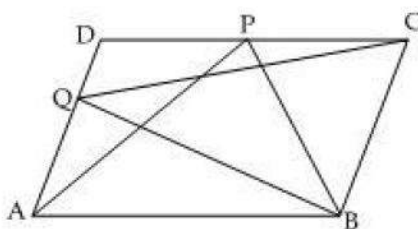
Outcome	1	2	3	4	5	6
Frequency	90	70	75	95	88	82

Find the probability of occurrence of a prime number.

- 6 Give one example of a situation in which
 - (i) the mean is an appropriate measure of central tendency
 - (ii) the mean is not an appropriate measure of central tendency but the median is an appropriate measure of central tendency
- 7 Prove that equal chords of a circle subtend equal angles at the centre.
- 8 Suppose you are given a circle. Give a construction to find its centre.
- 9 Find a value of k so that $x = -1$ and $y = -1$ is a solution of the linear equation $9kx + 12ky = 63$
- 10 Give the equation of one line passing through (2, 14). How many more such lines are there and why ?

SECTION – C

- 11 P and Q are any two points lying on the sides DC and AD respectively of a parallelogram ABCD. Show that $\text{ar}(\triangle APB) = \text{ar}(\triangle BQC)$.



- 12 Savitri had to make a model of a cylindrical kaleidoscope for her science project. She wanted to use chart paper to make the curved surface of the kaleidoscope. What would be the area of chart paper required by her, if she wanted to make a kaleidoscope of length 25 cm with a 3.5 cm radius ?

13 If the diagonals of a parallelogram are equal, then show that it is a rectangle.

14

15 The following frequency distribution table gives the weights of 38 students of a class

Weight in kg	Number of students
30-35	10
35-40	5
40-45	15
45-50	5
50-55	1
55-60	2
Total	38

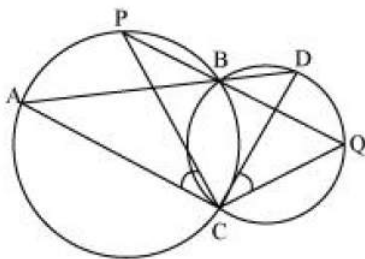
Find the probability that the weight of a student is

(i) more than or equal to 45 kg

(ii) less than 30 kg

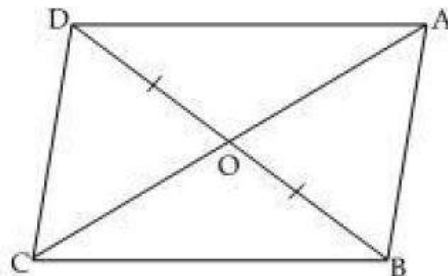
(iii) more than or equal to 30 kg but less than 60 kg

16 Two circles intersect at two points B and C. Through B, two line segments ABD and PBQ are drawn to intersect the circles at A, D and P, Q respectively (see the given figure). Prove that $\angle ACP = \angle QCD$.

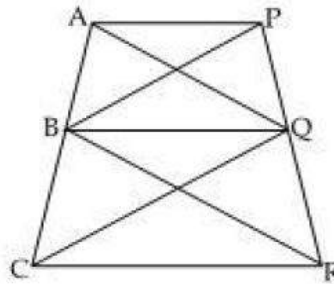


In the figure, diagonals AC and BD of quadrilateral ABCD intersect at O such that $OB = OD$. If $AB = CD$ then show that

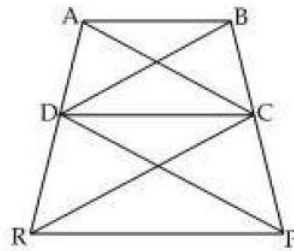
$\text{ar}(\triangle DOC) = \text{ar}(\triangle AOB)$



- 17 In the figure, $AP \parallel BQ \parallel CR$. Prove that $\text{ar}(\text{AQC}) = \text{ar}(\text{PBR})$



- 18 In the figure $\text{ar}(\text{DRC}) = \text{ar}(\text{DPC})$ and $\text{ar}(\text{BDP}) = \text{ar}(\text{ARC})$. Show that both the quadrilaterals ABCD and DCPR are trapeziums.



- 19 Find the mean for the weekly pocket money (in rupees) using the following data.

Pocket money (in Rs.)	55	50	49	81	48	57	65
Frequency	8	3	10	7	3	7	2

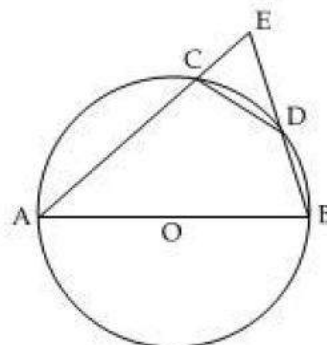
- 20 Express the linear equation $2 = 3x$ in the form $ax + by + c = 0$ and indicate the values of a , b and c . Also give the geometrical representation of above equation in two variables.

SECTION - D

- 21 ABCD is a rectangle in which diagonal AC bisects $\angle A$ as well as $\angle C$. Show that

- (i) ABCD is a square.
- (ii) Diagonal BD bisects $\angle B$ as well as $\angle D$

- 22 In the given figure, AB is a diameter of the circle ; CD is a chord equal to the radius of the circle. AC and BD when extended intersect at a point E. Prove that $\angle AEB = 60^\circ$.



- 23 A right triangle ABC with sides 5 cm, 12 cm and 13 cm is revolved about the side 12 cm. Find the volume of the solid so obtained.

- 24 The diameter of a metallic ball is 21 cm. What is the mass of the ball, if the density of the metal is 5 gm per cm^3 ?

- 25 The pillars of a temple are cylindrically shaped. If each pillar has a circular base of radius 20 cm and height 10 m, how much concrete mixture would be required to build 14 such pillars ?
- 26 If the 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 and draw the graph of the same by taking the constant force as 5 units. Also read from the graph the work done when the distance travelled by the body is 2 units.
- 27 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.
- 28 A hemispherical dome of a building needs to be painted. If the circumference of the base of the dome is 17.6 m, find the cost of painting it, given the cost of painting is Rs. 5 per 100 cm^2 .
- 29 Prove that the parallelograms on the same base and between the same parallels are equal in area.
- 30 Construct a triangle with perimeter 10 cm and base angles 60° and 45° .
- 31 The following table presents the number of literate females in a town :

Age group	10-15	15-20	20-25	25-30	30-35	35-40
Number of females	300	980	800	580	290	50

Draw a frequency polygon for the above data.