

CBSE
Class IX Mathematics
Term II
Sample Paper - 6

Time: 3½ hrs

Total Marks: 90

General Instructions:

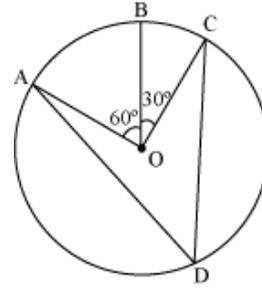
- 1. All** questions are **compulsory**.
- The question paper consists of **34** questions divided into **four sections** A, B, C, and D. **Section A** comprises of **8** questions of 1 mark each, **Section B** comprises of **6** questions of 2 marks each, **Section C** comprises of **10** questions of 3 marks each and **Section D** comprises of **10** questions of 4 marks each.
- Question numbers **1 to 8** in **Section A** are multiple choice questions where you are to select **one** correct option out of the given four.
- There is no overall choice. However, internal choice has been provided in 2 questions of **three marks** each and **2** questions of **four marks** each. You have to attempt only one of the alternatives in all such questions.
- Use of calculator is **not** permitted.

(SECTION – A)

- Medians of ΔXYZ intersect at D. If $\text{area}(XYZ) = 33 \text{ cm}^2$, then $\text{area}(YDZ) =$
(A) 16.5 cm^2
(B) 14 cm^2
(C) 18 cm^2
(D) 11 cm^2
- Class marks of a frequency distribution are 6, 10, 14, 18, 22, 26, and 30. Its class size will be
(A) 4
(B) 5
(C) 9
(D) 1
- The equation $7x = 3$ can be written in two variable as
(A) $7x + y = 3$
(B) $7xy = 3$
(C) $7x = 3y$
(D) $7x + 0y - 3 = 0$
- The median of a triangle divides it into two
(A) Congruent triangles
(B) Right triangles
(C) Triangles of equal area
(D) Equilateral triangles

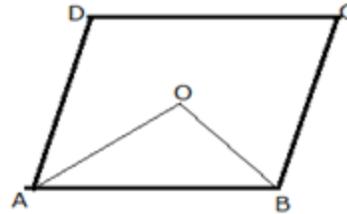
5. From the figure, find $\angle ADC$.

- (A) 180°
- (B) 45°
- (C) 60°
- (D) 30°



6. ABCD is a parallelogram. If OA and OB are the angle bisectors of the consecutive angles, then $m\angle AOB =$

- (A) 45°
- (B) 60°
- (C) 90°
- (D) 30°



7. The surface area of a sphere is same as the curved surface area of a right circular cylinder whose height and diameter are 12 cm each. The radius of the sphere is

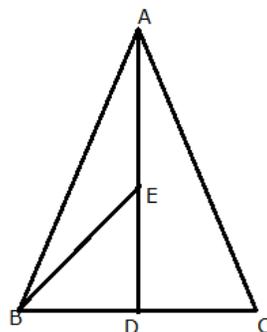
- (A) 5 cm
- (B) 4 cm
- (C) 6 cm
- (D) 7 cm

8. Find the surface area of a cube whose edge is 12 cm.

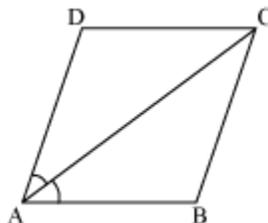
- (A) 846 cm^2
- (B) 864 cm^2
- (C) 866 cm^2
- (D) 844 cm^2

(SECTION – B)

9. If ABC is a triangle in which D is the midpoint of BC and E is the midpoint of AD, then find $\text{area}(\triangle BED)$.



10. If $(2k - 1, k)$ is a solution of the equation $10x - 9y = 12$, then find the value of k .
11. Diagonal AC of a parallelogram ABCD bisects $\angle A$ (see the given figure). Show that it bisects $\angle C$.



12. The inner diameter of a circular well is 3.5 m. It is 10 m deep. Find:
i. Its inner curved surface area
ii. The cost of plastering this curved surface at the rate of Rs. 40 per m^2 .
13. A large basket of fruit contains 3 oranges, 2 apples and 5 bananas. If a fruit is chosen at random, what is the probability of getting an orange or a banana?
14. Construct an angle measuring 120° .

(SECTION – C)

15. The lengths of two parallel chords of a circle are 6 cm and 8 cm. If the smaller chord is at a distance 4 cm from the centre, what is the distance of the other chord from the centre?
16. 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

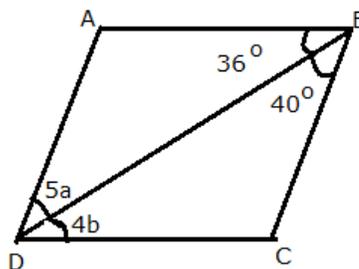
- Find the probability that the weight of students is
- More than or equal to 45 Kg
 - Less than 30kg
 - More than or equal to 30 Kg but less than 60 Kg

- 17.** A small indoor greenhouse (herbarium) is made entirely of glass panes (including the base) held together with tape. It is 30 cm long, 25 cm wide and 25 cm high.
- What is the area of the glass?
 - How much of tape is needed for all the 12 edges?
- 18.** The distribution of weight (in kg) of 100 people is given below.

Weight in kg	Frequency
40-45	13
45-50	25
50-55	28
55-60	15
60-65	12
65-70	5
70-75	2

Construct a histogram for the above distribution.

- 19.** In the given figure, ABCD is a parallelogram. Compute the values of 'a' and 'b'.



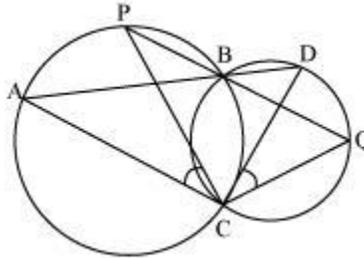
- 20.** Two unbiased dice are tossed 50 times. The sum of integers obtained on the dice is noted below.

Sum	2	3	4	5	6	7	8	9	10	11	12
Frequency	3	9	8	8	4	5	1	3	7	2	0

Find the probability that:

- The sum of integers is more than 9.
- The sum of integers is exactly 7.
- The sum of integers is less than 6.

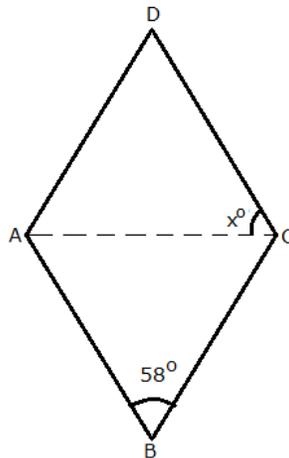
21. Two circles intersect at two points B and C. Through B, two line segments ABD and PBQ are drawn to intersect the circles at A, D and P, Q respectively. Prove that $\angle ACP = \angle QCD$.



OR

Prove that if chords of congruent circles subtend equal angles at their centres, then the chords are equal.

22. If ABCD is a rhombus with $m\angle ABC = 58^\circ$, determine $m\angle ACD$.



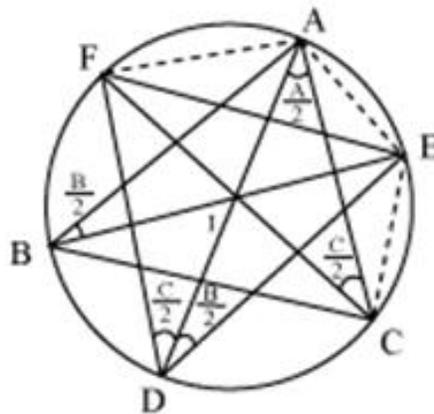
23. Find five different solutions for the equation $2x = 3y + 5$.
24. The students of a Vidyalaya were asked to participate in a competition for making and decorating penholders in the shape of a cylinder with a base, using cardboard. Each penholder was to be of radius 3 cm and height 10.5 cm. The Vidyalaya was to supply the competitors with cardboard. If there were 35 competitors, how much cardboard was required to be bought for the competition?

OR

A bus stop is barricaded from the remaining part of the road, by using 50 hollow cones made of recycled cardboard. Each cone has a base diameter of 40 cm and height of 1 m. If the outer side of each of the cones is to be painted and the cost of painting is Rs. 12 per m^2 , what will be the cost of painting all these cones? (Use $\pi = 3.14$ and take $\sqrt{1.04} = 1.02$)

(SECTION – D)

- 25.** Construct ΔPQR in which $QR = 6$ cm, $m\angle Q = 60^\circ$ and $PR - PQ = 2$ cm.
- 26.** Construct ΔABC in which $m\angle B = 60^\circ$, $m\angle C = 45^\circ$ and the perimeter of the triangle is 11 cm.
- 27.** Two chords AB and CD of lengths 5 cm and 11 cm respectively of a circle are parallel to each other and on opposite sides of the centre. If the distance between AB and CD is 6 cm, find the radius of the circle.
- 28.** Bisectors of angles A , B and C of ΔABC intersect its circumcircle at D , E and F respectively. Prove that the angles of ΔDEF are $90^\circ - \frac{1}{2}m\angle A$, $90^\circ - \frac{1}{2}m\angle B$ and $90^\circ - \frac{1}{2}m\angle C$.



- 29.** Two years later a father will be eight years more than three times the age of his son. Taking the present age of the father and son as x and y respectively,
- Write a linear equation for the above and draw its graph.
 - From the graph find the age of the father when the son is 10 years.

OR

Represent geometrically the solution of the equation $3y + 2 = 2y - 3$ on the same

- Number line
- Cartesian plane

- 30.** Construct a histogram for the following frequency distribution.

Class interval	5-12	13-20	21-28	29-36	37-44	45-52
Frequency	6	15	24	18	4	9

OR

Draw a histogram for the following data:

Class interval	Frequency
10 - 14	300
15 - 19	980
20 - 24	800
25 - 29	600
30 - 34	300
35 - 39	430
40 - 44	530

Make the intervals continuous.

- 31.** The capacity of a closed cylindrical vessel of height 1 m is 15.4 litres. How many square metres of metal sheet would be needed to make it? Use $\left(\pi = \frac{22}{7}\right)$
- 32.** The numbers 42, 43, 44, 44, $(2x + 3)$, 45, 45, 46, and 47 are in the ascending order. If the median is 45, find x . Hence, find the mode of the above data.
- 33.** A spherical ball 28 cm in diameter is melted and recast into a right circular cone mould whose base is 35 cm in diameter. Find the height of the cone.
- 34.** 3 equal cubes are placed adjacently in a row. Find the ratio of the total surface area of the new cuboid to that of the sum of the surface areas of three cubes.