

CBSE
Class IX Mathematics
Term II
Sample Paper - 9

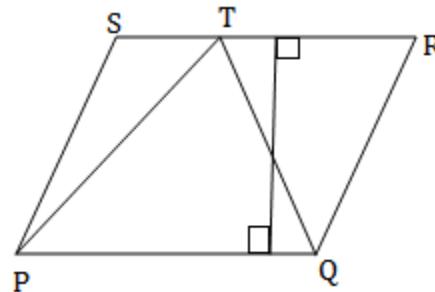
Time: 3½ hrs**Total Marks: 90****General Instructions:**

- 1.** All questions are **compulsory**.
- 2.** 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.
- 3.** 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.
- 4.** 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.
- 5.** Use of calculator is **not** permitted.

(SECTION – A)

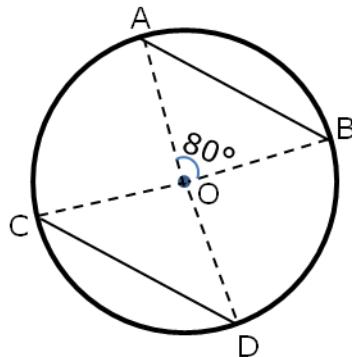
- 1.** A conical tank is 6 m deep and its circular top has a radius of 1.4 m. Find the capacity of the tank.
(A) 12.32 cm^3
(B) 86.24 cm^3
(C) 21.23 cm^3
(D) 86.34 cm^3
- 2.** The equation of the x-axis is
(A) $x + y = 0$
(B) $x - y = 0$
(C) $x = 0$
(D) $y = 0$
- 3.** In a parallelogram ABCD, if P and Q are midpoints of AB and CD respectively and area of parallelogram ABCD = 16 cm^2 , then area of parallelogram APQD is
(A) 8 cm^2
(B) 12 cm^2
(C) 6 cm^2
(D) 9 cm^2

- 4.** The relationship between the surface area of a sphere and lateral surface area of a right circular cylinder which just encloses the sphere is
- Surface area of the sphere is equal to the lateral surface area of the right circular cylinder.
 - Surface area of the sphere is less than the lateral surface of the right circular cylinder.
 - Surface area of the sphere is greater than the lateral surface area of the right circular cylinder.
 - Lateral surface area of the sphere is less than the surface area of the right circular cylinder
- 5.** Class marks of a frequency distribution are 6, 10, 14, 18, 22, 26, and 30. Its class size will be
- 4
 - 5
 - 9
 - 1
- 6.** In quadrilateral PQRS, the diagonals are equal and intersect each other at right angles. Then, quadrilateral PQRS is a
- Rectangle
 - Parallelogram
 - Rhombus
 - Square
- 7.** In the given figure, PQRS is a parallelogram having base $PQ = 6 \text{ cm}$ and perpendicular height is also 6 cm , then $\text{ar}(\Delta PTQ)$ is



- 12 cm^2
- 18 cm^2
- 6 cm^2
- 24 cm^2

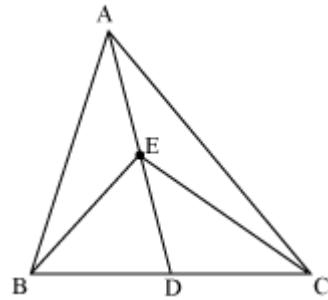
- 8.** AB and CD are two equal chords of a circle with centre O such that $\angle AOB = 80^\circ$, then $\angle COD$ is



- (A) 100°
- (B) 80°
- (C) 120°
- (D) 40°

(SECTION – B)

- 9.** In the given figure, E is any point on median AD of $\triangle ABC$. Show that $\text{ar}(\triangle ABE) = \text{ar}(\triangle ACE)$



- 10.** A kiddy bank contains hundred 50 p coins, fifty Rs. 1 coins, twenty Rs. 2 coins and ten Rs. 5 coins. If it is equally likely that one of the coins will fall out when the bank is turned upside down, what is probability that the coin
 i. Will be a 50 p coin? ii. Will not be a Rs. 5 coin?

- 11.** 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 .

- 12.** Write two solutions for $\pi x + y = 9$.

- 13.** Draw an angle of 50° using a protractor and bisect it.

- 14.** Show that the diagonals of a parallelogram divide it into four triangles of equal area.

(SECTION – C)

- 15.** If a dice is rolled once, what is the probability that it will show
 i. A multiple of 1? ii. A multiple of 7?
- 16.** A sphere, a cylinder and a cone have the same radius. Find the ratio of their curved surface areas.

OR

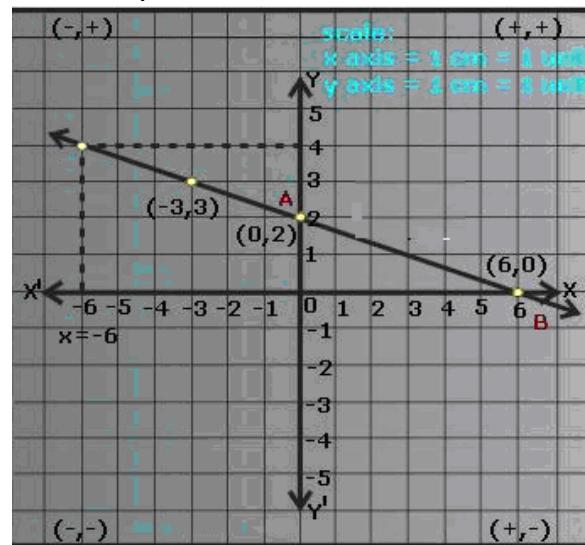
A joker's cap is in the form of right circular cone whose base radius is 7 cm and height is 24 cm. Find the area of the sheet required to make 10 such caps.

- 17.** In a retail market, a fruit vendor was selling oranges kept in packing baskets. These baskets contained varying number of oranges. The following was the distribution of oranges:

No. of oranges	10-14	15-19	20-24	25-29	30-34
No. of baskets	15	110	135	115	25

Find the mean number of oranges kept in each basket. Which method of finding the mean did you choose?

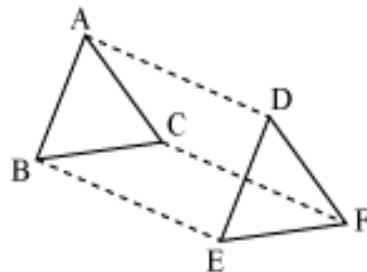
- 18.** If diagonals of a cyclic quadrilateral are diameters of the circle through the vertices of the quadrilateral, prove that it is a rectangle.
- 19.** A village, having a population of 4000, requires 150 litres of water per head per day. It has a tank measuring $20\text{ m} \times 15\text{ m} \times 6\text{ m}$. For how many days will the water of this tank last?
- 20.** Given below is the graph of the equation $ax + by + c = 0$. Use the graph to find
 i. x when $y = 0$ and ii. y when $x = 0$



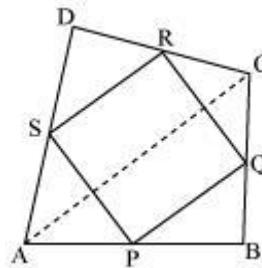
OR

Sum of the digits of a two digit number is 12. If 18 is added to the original number the digits interchange their places. Write two linear equations representing these situations.

- 21.** In $\triangle ABC$ and $\triangle DEF$, $AB = DE$, $AB \parallel DE$, $BC = EF$ and $BC \parallel EF$. Vertices A, B and C are joined to vertices D, E and F respectively (see the given figure). Show that $AD \parallel CF$ and $AD = CF$



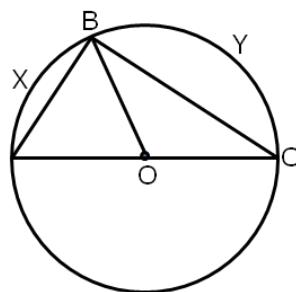
- 22.** ABCD is a quadrilateral in which P, Q, R and S are mid-points of the sides AB, BC, CD and DA, as shown in the given figure. AC is the diagonal. Prove that:



- i. $SR \parallel AC$ and $SR = \frac{1}{2} AC$
- ii. $PQ = SR$
- iii. PQRS is a parallelogram.

- 23.** A box contains 90 discs which are numbered from 1 to 90. If one disc is drawn at random from the box, find the probability that it bears (i) A two-digit number (ii) A perfect square number (iii) A number divisible by 5.

- 24.** In the figure, AOC is a diameter of the circle and $\text{arc } AXB = \frac{1}{2} \text{arc } BYC$. Find $\angle BOC$.



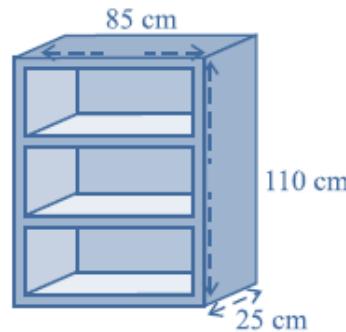
(SECTION – D)

- 25.** Suppose you have Rs. 12000 to invest. You have to invest some amount at 10% and the rest at 15%. How much should be invested at each rate to yield 12% in the total amount invested?

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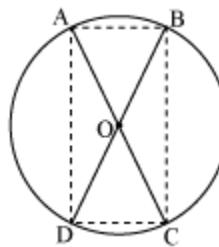
Places A and B are 100 km apart on a highway. One car starts from A and another from B at the same time at different speeds. If the cars travel in the same direction, they meet in 5 hours. If they travel towards each other, they meet in 1 hour. What are the speeds of the two cars?

- 26.** A wooden bookshelf has external dimensions as follows: height = 110 cm, depth = 25 cm, breadth = 85 cm. The thickness of the plank is 5 cm everywhere. The external faces are to be polished and the inner faces are to be painted. If the rate of polishing is 20 paise per cm^2 and the rate of painting is 10 paise per cm^2 , find the total expenses required for polishing and painting the surface of the bookshelf.



- 27.** A dome of a building is in the form of a hemisphere. From inside, it was white-washed at the cost of Rs. 498.96. If the cost of white-washing is Rs. 2.00 per square metre, find the
- Inner surface area of the dome
 - Volume of air inside the dome.

- 28.** AC and BD are chords of a circle which bisect each other. Prove that (i) AC and BD are diameters; (ii) ABCD is a rectangle.

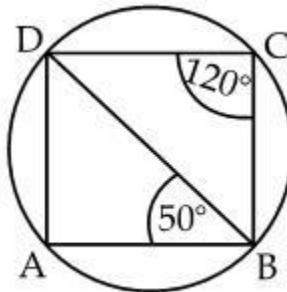


OR

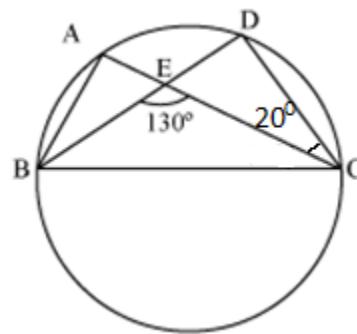
The lengths of two parallel chords of a circle are 6 cm and 8 cm. If the smaller chord is at distance of 4 cm from the centre, what is the distance of the other chord from the centre?

- 29.** Construct $\triangle ABC$ whose sides are 3.5 cm, 3.0 cm and 4.8 cm. Bisect the smallest angle and measure each part.

- 30.** (a) ABCD is a cyclic quadrilateral. Find $\angle ADB$



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



- 31.** Construct a triangle with base = 5 cm, sum of the other two sides = 7.7 cm and one of the angles at the base = 60° .

- 32.** A farmer connects a pipe of internal diameter 25 cm from a canal into a cylindrical tank in his field which is 12 m in diameter and 2.5 m deep. If water flows through the pipe at the rate of 3.6 km/h, in how much time will the tank be filled? Also, find the cost of water if the canal department charges at the rate of Rs. 0.07 m^3 . use $\pi = \frac{22}{7}$

- 33.** (a) The mean monthly salary paid to 75 workers in a factory is Rs.5680. the mean salary of 25 of them is Rs.5400 and that of 30 others is Rs.5700. Find the mean salary of the remaining workers.
 (b) Find the median and mode for: 14, 25, 14, 28, 18, 17, 18, 14, 23, 22, 14, and 18 .

34. The marks of students of class 9 are given below. Draw a histogram for the data.

Marks	Number of Students
10 – 20	7
20 – 30	11
30 – 40	9
40 – 50	13
50 – 60	16
60 – 70	4
70 – 80	2