CBSE Class 10 Maths Question Paper

Q.1) Which of the following cannot be the probability of an event?

    A. 1.5

    B. $\frac{3}{5}$

    C. 25%

    D. 0.3

Q.2 The mid-point of segment AB is the point P (0, 4). If the Coordinates of B are (-2, 3) then the coordinates of A are

    A. (2, 5)

    B. (-2.-5)

    C. (2, 9)

    D. (-2, 11)

Q3. The point P which divides the line segment joining the point A (2, -5) and B (5, 2) in the lies in the ratio 2:3 quadrant.

    A.   1
    B.   Ii
    C.   Iii
    D.   Iv

Q4. The angle of elevation of the top of a tower from a point on the ground, which is 30 m away foot of the tower, is 45°. The height of the tower (in metres) is

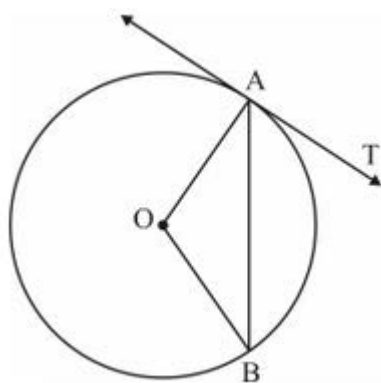   A.   15
    B.   30
    C. $30\sqrt{3}$
    D. $10\sqrt{3}$

Q5. A sphere of diameter 18 cm is dropped into a cylindrical vessel of diameter 36 cm partly filled with water. If the sphere is completely submerged, then the water level rises (in cm) by
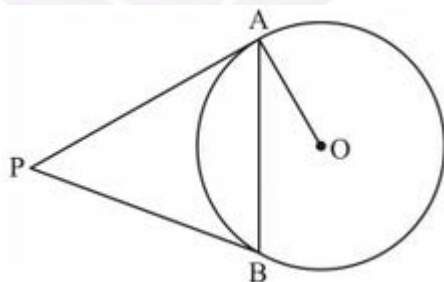
    A. 3
    B. 4
    C. 5
    D. 6

Q 6   In figure 1, O is the centre of a circle, AB is a chord and AT is the tangent at A. If $\angle AOB = 100°$, then $\angle BAT$ is equal to

    A. 100°
    B. 40°
    C. 50°
    D. 90°

Q7.   In figure 2, PA and PB are tangents to the circle with centre O. If $\angle APB = 60°$, then $\angle OAB$ is

    A. 30°
    B. 60°
    C. 90°
    D. 15°

Q8. The roots of the equation $x^2 + x - (p +1) = 0$, where p is a constant are

A. p, p+1

B. −p, p+1

C. p, -(p+1)

D. −p, - (p +1)

Q9. In an AP, if a= 15, d = -3 and a_n = 0, then the value of n is

A. 5

B. 6

C. 19

D. 4

Q10. The radii of two circles are 8 cm and 6 cm respectively. The diameter of the circle having area equal to the sum of the areas of the two circles (in cm) is

A. 10

B. 14

C. 20

D. 28

Q11. A coin is tossed two times. Find the probability of getting both heads and both tails.

Q12. Find the value of m so that the quadratic equation mx (5x − 6) + 9 =0 has two equal roots.

Q13. Find the value (s) of x for which the distance between the points P(x, 4) and Q (9, 10) is 10 units.

Q14. Two cubes, each of side 4 cm are joined end to end. Find the surface area of the resulting cuboid.

Q15. Draw a line segment of length 6 cm. Using compasses and ruler, find a point P on it which divides it in the ratio 3:4.

Q 16. Two concentric circles are of radii 7 cm and r cm respectively, where r > 7. A chord of the larger

Circle, of length 48 cm, touches the smaller circle. Find the value of r.

Q17. Find whether - 150 is a term of the AP 17, 12, 7, 2 …….?

Q18. In figure 3, APB and CQD are semi-circles of diameter 7 cm each, while ARC and BSD are semi-
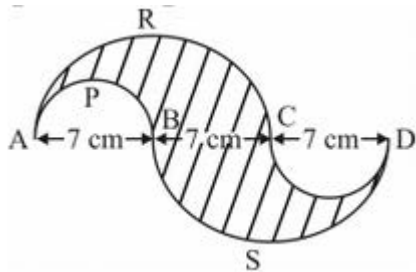
circles of diameter 14 cm each. Find the perimeter of the shaded region. [Use $\pi = \frac{22}{7}$]
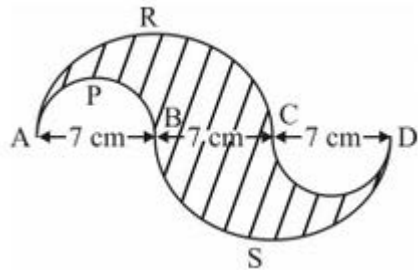
OR

Find the area of a quadrant of a circle, where the circumference of circle is 44 cm.

[Use $\pi = \dfrac{22}{7}$]

Q19. If two vertices of an equilateral triangle are (3, 0) and (6, 0), find the third vertex.

OR

Find the value of k, if the points P (5, 4), Q (7, k) and R (9, -2) are collinear.

Q20. From the top of a tower 100 m high, a man observes two cars on the opposite of the tower

with angles of depression 30° and 45° respectively. Find the distance between the cars.

Use [$\sqrt{3}$ = 1.73]

Q21. Two dice are rolled once. Find the probability of getting such numbers on two dice, whose product is a perfect square.

OR

A game consists of tossing a coin 3 times and noting its outcomes each time. Hanif wins if he gets three heads or three tails, and loses otherwise. Calculate the probability that Hanif will lose the game.

Q22. The radii of the circles ends of a bucket of height 15 cm are 14 cm and r cm (r < 14 cm).

If the volume of bucket is 5390 cm^3, then find the value of r. [Use $\pi = \frac{22}{7}$]

Q23. In fig. 4, a triangle ABC is drawn to circumscribe a circle of radius 2 cm such that the segments BD and DC into which BC is divided by the point of contact D are of lengths 4 cm and 3 cm respectively. If area of $\triangle ABC = 21$ cm^2, then find the lengths of sides AB and AC.
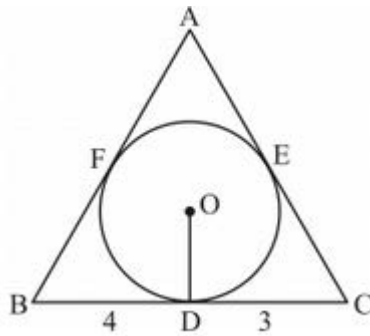
Q24. Find the value of the middle term of the following AP:
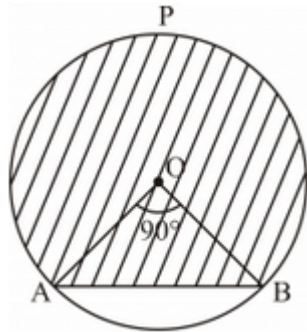
-6,-2, 2 ………….58.

OR

Determine the AP whose fourth term is 18 and the differences of the ninth term from the fifteenth

term is 30.

Q25. Find the roots of the following quadratic equation:

$2\sqrt{3}x^2 - 5x + \sqrt{3} = 0$

Q26. Find the area of the major segment APB, in Fig 5, of a circle of radius 35 cm and $\angle AOB = 90°$

[Use $\pi = \frac{22}{7}$]

Q27. Draw a triangle PQR such that PQ = 5 cm, ∠P = 120° and PR = 6 cm. Construct another triangle

Whose sides are $\frac{3}{4}$ times the corresponding sides of ΔPQR?

Q28. Find the point of y-axis which is equidistant from the points (-5, -2) and (3, 2).

Q29. From a solid cylinder of height 20 cm and diameter 12 cm, a conical cavity of height 8 cm and
radius 6 cm is hollowed out. Find the total surface area of the remaining solid. [Use $\pi = \frac{22}{7}$]

Q30. The length and breadth of a rectangular piece of paper are 28 cm and 14 cm respectively. A semi-
circular portion is cut off from the breadth's side and a semicircular portion is added on length's side, as
shown in Fig. 6. Find the area of the shaded region. [Use $\pi = \frac{22}{7}$]
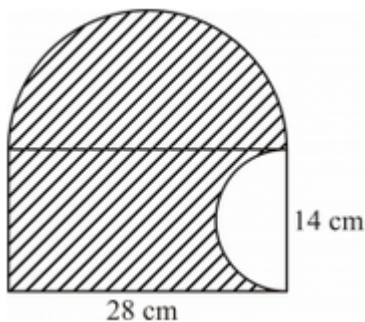
Q31. From the top of a 15 m high building, the angle of elevation of the top of a cable tower is 60° and
the angle of depression of its foot is 30° . Determine the height of the tower.

Q32. A motor boat whose speed is 20 km/h is still water, takes 1 hour more to go 48 km upstream than

to return downstream to the same spot. Find the speed of the steam.

OR

Find the roots of the equation $\frac{1}{x+4} - \frac{1}{x-7} = \frac{11}{30}$, x≠ -4, 7

Q33. Prove that the lengths of tangents drawn from an external point to a circle are equal.

Q34. If the sum of first 4 terms of an AP is 40 and that of first 14 terms is 280. Find the sum of its first n terms.

 OR

 Find the sum of the first 30 positive integers divisible by 6.