SECTION - A

August 27, 2024

Section-A consists of Multiple choice Type questions of 1 mark each. i

1. The pair of linear equations $2x = 5y + 6$ and $15y = 6x - 18$ represents two lines which are:

   (a) intersecting

   (b) parallel

   (c) coincident

   (d) either intersecting or parallel

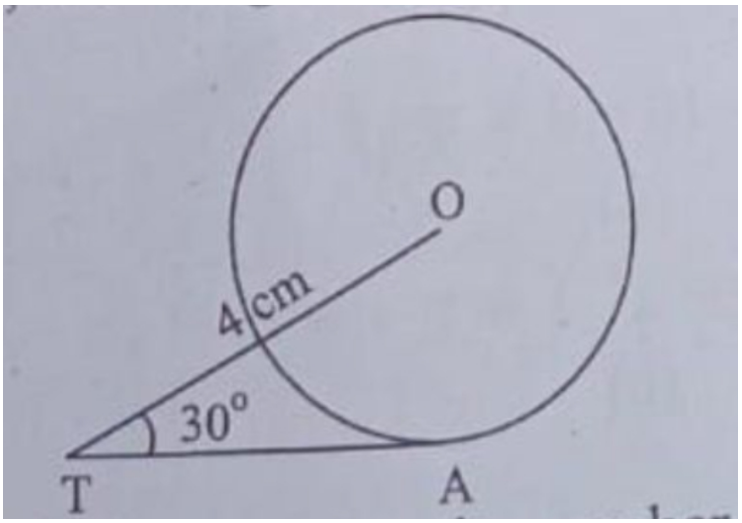
2. In the given figure, TA is a tangent to the circle with center O such that $OT = 4$ cm, $\angle OTA = 30°$, then the length of TA is:

   (a) $2 \times \sqrt{3}$ cm

   (b) 2 cm

   (c) $2 \times \sqrt{2}$ cm

   (d) $\sqrt{3}$ cm



3. The ratio of HCF to LCM of the least composite number and the least prime number is:

   (a) 1;2

   (b) 2:1

   (c) 1:1

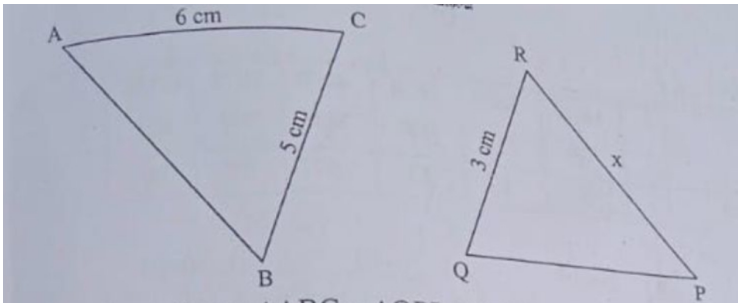
(d) 1:3

4. If a pole 6 m high casts a shadow $2 \times \sqrt{3}$m long on the ground,then sun's elevation is:

   (a) 60°
   (b) 45°
   (c) 30°
   (d) 90°

5. In the given figure,$\triangle ABC \sim \triangle QPR$,If AC = 6 cm,BC = 5 cm,QR = 3 cm and PR = x;then the value of x is:

   (a) 3.6 cm
   (b) 2.5 cm
   (c) 10 cm
   (d) 3.2 cm



6. The distance of the point (-6,8) fom origin is:

   (a) 6
   (b) -6
   (c) 8
   (d) 10

7. The next term of the A.P,:$\sqrt{70},\sqrt{28},\sqrt{63}$ is:

   (a) $\sqrt{70}$
   (b) $\sqrt{80}$
   (c) $\sqrt{97}$
   (d) $\sqrt{112}$

8. $(\sec^2\theta - 1)(\csc^2\theta - 1)$ is equal to:

(a) -1

(b) 1

(c) 0

(d) 2

9. Two dice are thrown together. The probability of getting the difference of numbers on their upper faces equal to 3 is:

(a) $\frac{1}{9}$

(b) $\frac{2}{9}$

(c) $\frac{1}{6}$

(d) $\frac{1}{12}$

10. A Card is drawn at random from a well-shuffled paack of 52 cards.The probability that the card drawn is not an ace is:

(a) $\frac{1}{13}$

(b) $\frac{9}{13}$

(c) $\frac{4}{13}$

(d) $\frac{12}{13}$

11. The roots of the equation $x^2 + 3x - 10 = 0$ are:

(a) $2, -5$

(b) $-2, 5$

(c) $2, 5$

(d) $-2, -5$

12. If α, β are zeroes of the polynomial $x^2 - 1$, then the value of $(\alpha + \beta)$ is:

(a) 2

(b) 1

(c) -1

(d) 0

13. If α, β are the zeroes of the polynomial $p(x) = 4x^2 - 3x - 7$, then $\left(\frac{1}{\alpha} + \frac{1}{\beta}\right)$ is equal to:

(a) $\frac{7}{3}$

(b) $-\frac{7}{3}$

(c) $\frac{3}{7}$

(d) $-\frac{3}{7}$

14. What is the area of a semi-circle of diameter d?

    (a) $\frac{1}{16} \times \pi \times d^2$
    (b) $\frac{1}{4} \times \pi \times d^2$
    (c) $\frac{1}{8} \times \pi \times d^2$
    (d) $\frac{1}{2} \times \pi \times d^2$

15. For the following distribution:

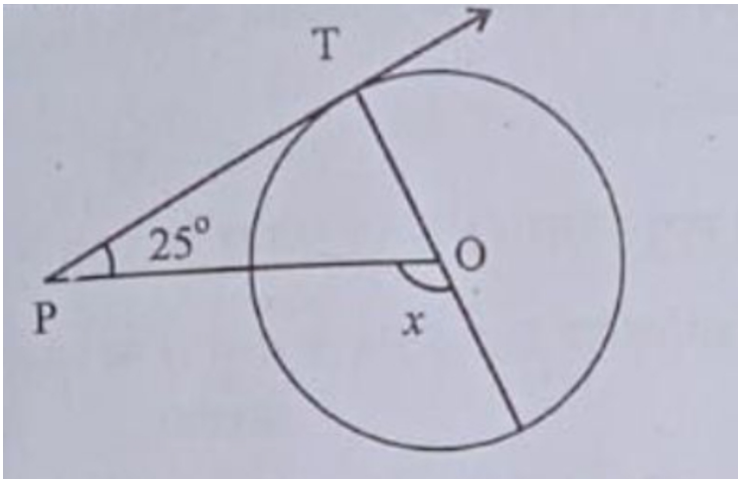
Marks Below	10	20	30	40	50	60
Number of Students	3	12	27	57	75	80

    The modal class is:

    (a) 10-20
    (b) 20-30
    (c) 30-40
    (d) 50-60

16. In the given figure, PT is a tangent at T to the circle with centre O. If $\angle TPO = 25°$, then x is equal to:

    (a) 25°
    (b) 65°
    (c) 90°
    (d) 115°



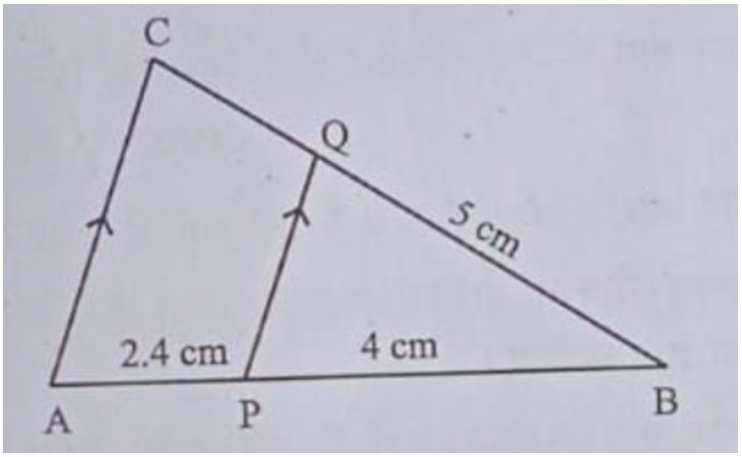
17. In the given figure, $PQ \parallel AC$. If $BP = 4\,\text{cm}$, $AP = 2.4\,\text{cm}$, and $BQ = 5\,\text{cm}$, then the length of BC is:

    (a) 8 cm

    (b) 3 cm

    (c) 0.3 cm

    (d) $\frac{25}{3}$ cm



18. The points $(-4, 0)$, $(4, 0)$, and $(0, 3)$ are the vertices of a:

    (a) right triangle

    (b) isosceles triangle

    (c) equilateral triangle

    (d) scalene triangle

19. DIRECTIONS: In questions number 19 and 20, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option out of the following:

    19. Assertion (A): The probability that a leap year has 53 Sundays is $\frac{2}{7}$.

    Reason (R): The probability that a non-leap year has 53 Sundays is $\frac{5}{7}$.

    (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

    (b) Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of Assertion (A).

    (c) Assertion (A) is true but Reason (R) is false.

    (d) Assertion (A) is false but Reason (R) is true.