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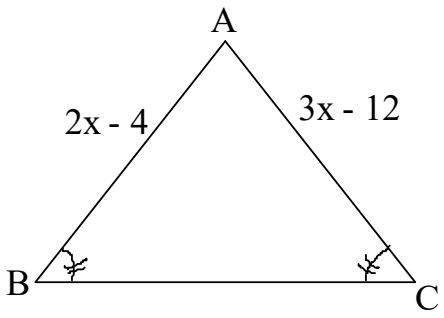
Learning by Design

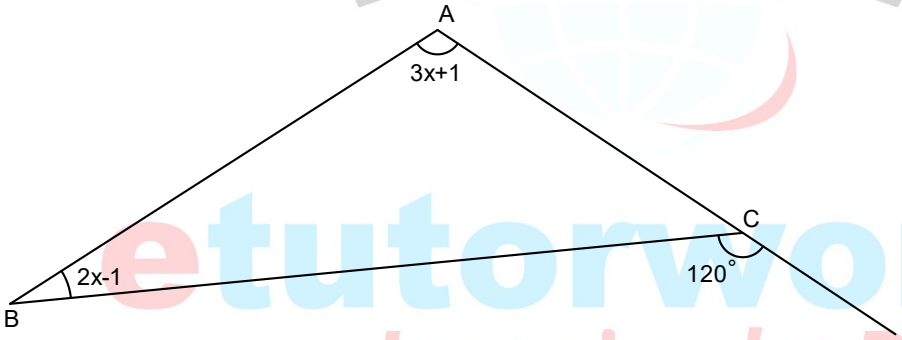
Geometry Diagnostic

1. In the triangle ΔABC, $\angle ABC = \angle ACB$ and $AB = 2x - 4$ and $AC = 3x - 12$, then x =



(a) 4
(b) 8
(c) 12
(d) 10

2. In the following diagram, $m\angle A$ is



(a) 37°
(b) 23°
(c) 60°
(d) 73°

3. If the reflection of the point P(a,b) about the origin lies in the IV quadrant, then the point P lies in
   (a) I quadrant
   (b) II quadrant
   (c) III quadrant
   (d) IV quadrant

(Hint: the reflection of the point (1, 4) about the origin is (-1, -4))

4. The reflected image of the point $(2,3)$ about the origin is

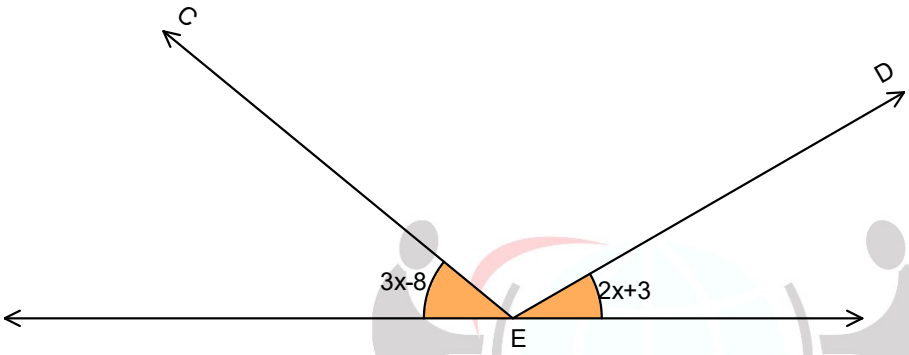
(a) $(-2,3)$

(b) $\left(\frac{1}{2},\frac{1}{3}\right)$

(c) $(2,-3)$

(d) $(-2,-3)$

5. The measure of $\angle DEC$, if $x=15$, is



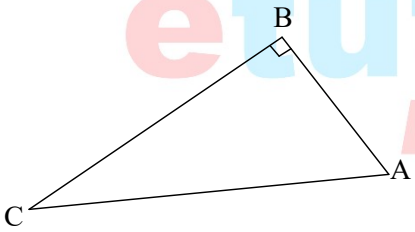
(a) $110°$

(b) $90°$

(c) $147°$

(d) $143°$

6. In the right triangle ABC, if $AB=5$ and $AC=10$, then BC equals



(a) $5\sqrt{5}$

(b) $25\sqrt{5}$

(c) $5\sqrt{3}$

(d) 75

7. In an equilateral triangle ABC, if $AB=10\,cm.$, then its area equals

(a) $3\sqrt{5}\,cm.$

(b) $5\sqrt{3}\,cm.$

(c) $5\sqrt{5}\,cm.$

(d) $5\,cm.$

8. Half the perimeter of a square is 10 cm, then its area equals
   (a) $100\ cm^2$
   (b) $25\ cm^2$
   (c) $\frac{25}{4}\ cm^2$
   (d) $16\ cm^2$

9. In a triangle ABC, right angled at B, AB= 5 and AC= 13, Angle C = θ. Then $sin\theta =$ _____
   (a) 1/3
   (b) 3/5
   (c) 5/6
   (d) $\frac{5}{13}$

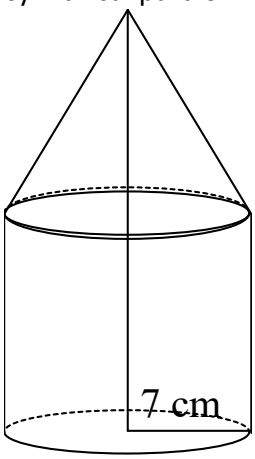
10. If the area of an equilateral ΔABC is 40 sq.cm, and its altitude is 16 cm, then its perimeter is
   (a) 15 cm.
   (b) 5 cm.
   (c) 25 cm.
   (d) 20 cm.

11. Find θ if cos θ = √3/2 and −π ≤ θ ≤ π.
   (a) π/2
   (b) π/3
   (c) π/4
   (d) π/6

12. If a cone and a cylinder have the same height and volume, then the ratio of the radius of the cone to that of the cylinder is
   (a) 3 : 1
   (b) 1 : 3
   (c) 2 : 1
   (d) 1 : 2

13. The surface area of sphere of volume $4500\pi\ cm^3$ is
   (a) $900\pi\ cm^2$
   (b) $225\pi\ cm^2$
   (c) $1225\pi\ cm^2$
   (d) $1000\pi\ cm^2$

14. The volume of the figure given below where the radius is 7cm. and lateral surface area of the cylindrical part is 440 sq.cm. and the slant height is $\sqrt{74}$ is



(a) $\frac{2659\pi}{3} cm^3$

(b) $\frac{2695\pi}{3} cm^3$

(c) $\frac{2965\pi}{3} cm^3$

(d) $\frac{2659\pi}{3} cm^3$

15. If a block of metal in the form of a cube of side 20 cm. is melted and cast into spheres of equal radius of 2 cm., then the number of such spheres is equal to (nearest to an integer)

(a) 230
(b) 225
(c) 237
(d) 238