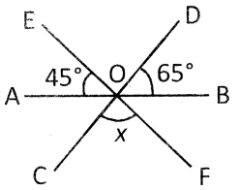
Geometry

Self-Evaluation Test

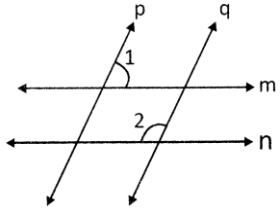
1. **In the figure $\angle AOE = 45°$ and $\angle BOD = 65°$. Find the angle x.**



(a) 45° (b) 65°
(c) 70° (d) 110°
(e) None of these

2. **Two lines perpendicular to the same line are_____ to each other**
(a) perpendicular (b) parallel
(c) opposite (d) horizontal
(e) None of these

3. **In the figure m || n and p || q. If $\angle 1 = 70°, \angle 2 =$ _____:**

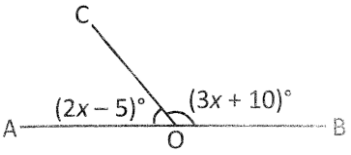


(a) 70° (b) 100°
(c) 80° (d) 110°
(e) None of these

4. **Measure of two complementary angles are in the ratio 2: 3. Find the measure of the bigger angle.**
(a) 64° (b) 36°
(c) 70° (d) 54°
(e) None of these

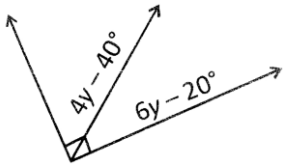
5. **Which pair of angles are complementary?**
(a) $y°, (180 - y)°$ (b) $x°, (90 + x)°$
(c) $x°, (90 - x)°$ (d) $63°, 37°$
(e) None of these

6. **In the given figure $\angle AOC = (2x - 5)°$ and $\angle BOC = (3x + 10)°$. Find the value of x**



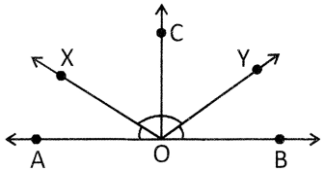
(a) 40° (b) 30°
(c) 35° (d) 19°
(e) None of these

7. **Find the difference between two angles in the figure given below.**



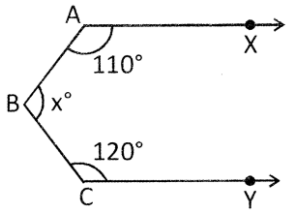
(a) 15° (b) 50°
(c) 70° (d) 20°
(e) None of these

8. **In the following figure, AOB is a straight line. If OX and OY are bisector of $\angle AOC$ and $\angle BOC$, then fined $\angle XOY$.**



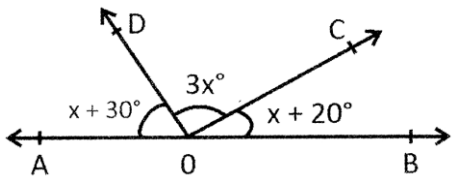
(a) 95° (b) 90°
(c) 98° (d) 92°
(e) None of these

9. **In the following figure, if AX is parallel to CY, then find x.**



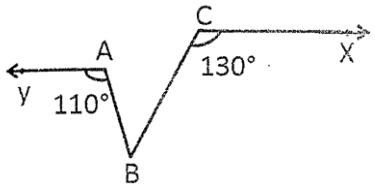
(a) 130° (b) 170°
(c) 190° (d) 180°
(e) None of these

10. Find the value of x, from the figure given below.



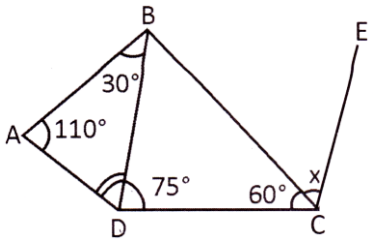
(a) 24° (b) 26°
(c) 28° (d) 30°
(e) None of these

11. If AY parallel to CX, then find $\angle ABC$.



(a) 45° (b) 60°
(c) 75° (d) 90°
(e) None of these

12. If CE is parallel to DB in the given figure, then value of x will be _____.

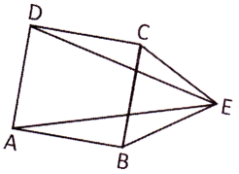


(a) 45° (b) 75°
(c) 30° (d) 85°
(e) None of these

13. Four triangles are formed by joining the midpoints of the three sides of a triangle, then:

(a) Two triangles are congruent
(b) Three triangles are congruent
(c) All the triangles are congruent
(d) None are congruent
(e) None of these

14. In the adjoining figure ABCD is a square and EBC is an equilateral triangle. The measure of $\angle EAB$ is equal to:

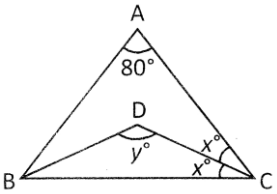


(a) 15° (b) 30°
(c) $\left(22\frac{1}{2}\right)^{\circ}$ (d) 45°
(e) None of these

15. In a triangle ABC, BD and CE are perpendicular on AC and AB respectively, If BD = CE, then the triangle ABC is:

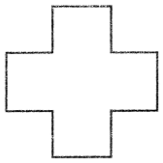
(a) Equilateral (b) Isosceles
(c) Right angled (d) Scalene
(e) None of these

16. In the figure, $\angle A = 80°, \angle B = 60°, \angle C = 2x°$ and $\angle BDC = y°$, BD and CD are bisector of $\angle B$ and $\angle C$, respectively. The values of x and y respectively are:



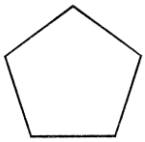
(a) 15° and 70° (b) 10° and 160°
(c) 20° and 130° (d) 20° and 125°
(e) None of these

17. What is the order of rotational symmetry of the figure given below?



(a) 1 (b) 2
(c) 3 (d) 4
(e) None of these

18. The figure given below contains how many lines of symmetry?



(a) 1 (b) 3
(c) 5 (d) infinite
(e) None of these

Answer – Key

1. (C)	**2.** (B)	**3.** (D)	**4.** (D)	**5.** (C)
6. (C)	**7.** (B)	**8.** (B)	**9.** (A)	**10.** (B)
11. (B)	**12.** (D)	**13.** (D)	**14.** (A)	**15.** (B)
16. (C)	**17.** (D)	**18.** (A)		

Explanation for Selected Questions

9. **Explanation**

AOB is a straight line

$\therefore \angle AOC + \angle BOC = 180°$

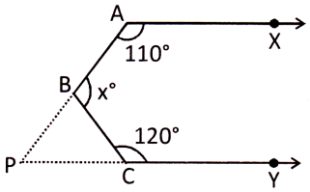
$\Rightarrow \frac{1}{2}\angle AOC + \frac{1}{2}\angle BOC = \frac{1}{2} \times 180°$

$\Rightarrow \angle XOC + \angle YOC = 90°$

$\Rightarrow \angle XOY = 90°$

10. **Explanation**

Extend AB and YC as shown so that they meet in P. In ΔBCP



$\angle BCP = 180° - 120° = 60°$ ($\therefore$ PCY is a straight line)

$\angle BPC = 180° - 110° = 70°$

($\therefore$ $\angle BAX$ and $\angle BPY$ are the interior angles of two parallel lines AX and CY)

$\therefore x = \angle BCP + \angle BPC = 60° + 70° = 130°$

11. **Explanation**

$x + 30° + 3x + x + 20° = 180°$

$5x + 50° = 180°$

$\Rightarrow 5x = 130°$

$= x = 26°.$

12. **Explanation**

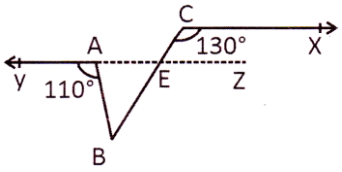
$x = 40°$ (because it is vertically opposite angle)

$40 + z = 180°$

$\Rightarrow z = 140°$ (Linear pair)

$\Rightarrow y = z = 140°$ (Vertically opposite angle).

13. **Explanation**



$\angle CEZ = 50°$

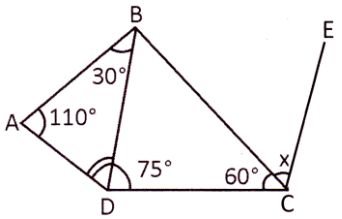
$\angle CEZ = \angle AEB = 50°$ (Vertically opposite angles)

and $\angle YAB + \angle BAE = 180°$ (Linear pair)

$\angle BAE = 70°$

$\Rightarrow ABC = 180° - (70° + 50°) = 180° - 120° = 60°.$

14. **Explanation**



$\angle ADB = 180° - (110° + 30°) = 40°$

$\angle BDC = 75° - 40° = 35°$

$DB \| CE$

$\therefore 35° + (60° + x°) = 180°$

$\Rightarrow x = 85°.$

17. **Explanation**

In ABDC and ABEC,

$BC = BC$ (common)

$\angle BDC = \angle BEC$ (each equal to 90°)

$BD = CE$ (Given)

$\therefore \Delta BDC \cong \Delta BEC$

$\angle DCB = \angle EBC$ (By c.p.c.t)

$\Rightarrow AB = AC$ (Sides opposite to equal adjacent angles in a triangle)

Hence, the ΔABC is an isosceles triangle.

18. **Explanation**

In ΔABC, $\angle A + \angle B + \angle C = 180°$

$80° + 60° + 2x° = 180°$

$\Rightarrow \quad 2x° = 40°$

$x° = 20°$

In ZBDC,

$\angle DBC + \angle DCB + \angle BDC = 180°$

$\Rightarrow \frac{1}{2}\angle ABC + \frac{1}{2}\angle ACB + \angle BDC = 180°$ (BD and CD bisect $\angle B$ and $\angle D$)

$\Rightarrow \frac{1}{2}(\angle ABC + \angle ACB) + \angle BDC = 180°$

$\Rightarrow \frac{1}{2}(60° + 2x°) + y° = 180°$

$\Rightarrow \frac{1}{2}(100°) + y° = 180°$

$\Rightarrow \quad y° = 180° - 50° = 130°.$