

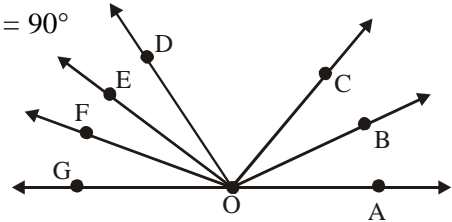
MATHEMATICS

CLASS - IX

Choose the correct option(s) in the following :

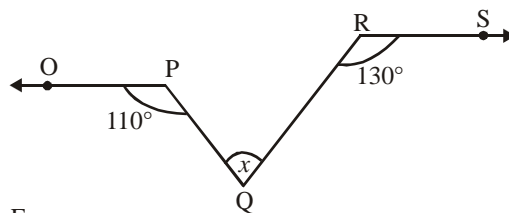
1. The complement of $54^\circ 30' . 29''$ is
 (a) $35^\circ 29' 31''$ (b) $54^\circ 30' 29''$ (c) $30^\circ 30' 30''$ (d) none of these
2. the supplement of angle $134^\circ 30' 26''$
 (a) $55^\circ 48' 12''$ (b) $55^\circ 29' 34''$ (c) $55^\circ 12' 48''$ (d) none of these
3. If OE bisects $\angle AOC$; OF bisects $\angle COB$ and $OE \perp OF$, then
 (a) A, O, B are collinear (b) A, O, B are not collinear
 (c) A, O, B are vertices of a triangle (d) none of these

4. In figure $\angle AOF$ & $\angle FOG$ from a linear pair $\angle EOB = \angle FOC = 90^\circ$
 and $\angle DOC = \angle FOG = \angle AOB = 30^\circ$ then
 (a) $\angle DOG = 90^\circ$ (b) $\angle DOE = 90^\circ$
 (c) $\angle AOD = 120^\circ$ (d) none of these

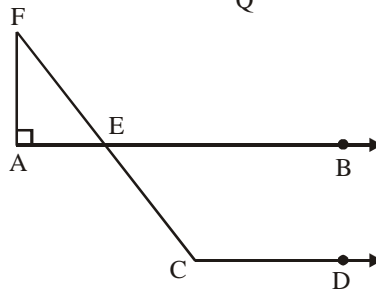


5. The bisector of a pair of vertically opposite angles are
 (a) In different straight line
 (b) In same straight line
 (c) lie on different planes
 (d) none of these

6. If $OP \parallel RS$ then
 (a) $x = 30^\circ$ (b) $x = 45^\circ$
 (c) $x = 60^\circ$ (d) $x = 90^\circ$

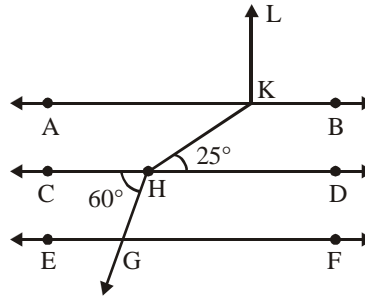


7. If figure $AB \parallel CD$ and $\angle F = 30^\circ$ then
 (a) $\angle ECD = 60^\circ$
 (b) $\angle ECD = 90^\circ$
 (c) $\angle ECD = 120^\circ$
 (d) $\angle ECD = 135^\circ$



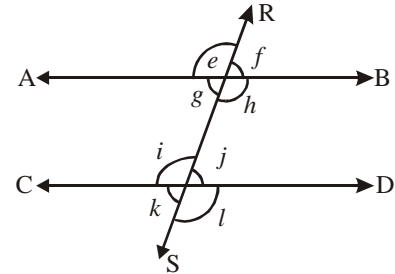
8. In figure $AB \parallel CD \parallel EF$ and $GH \parallel KL$ then

- (a) $\angle HKL = 60^\circ$
- (b) $\angle HKL = 90^\circ$
- (c) $\angle HKL = 120^\circ$
- (d) $\angle HKL = 145^\circ$



9. Line RS is a transversal of line AB and line CD then

- (a) if $\angle h \cong \angle j$ then $AB \parallel CD$
- (b) if $\angle g \cong \angle k$ then $AB \parallel CD$
- (c) if $\angle i \cong \angle j$ then $AB \parallel CD$
- (d) if $\angle j \cong \angle k$ then $AB \parallel CD$



10. Two objects that have the same size and shape are

- (a) collinear
- (b) equal
- (c) both equal & collinear
- (d) none of these

11. Assume a triangle ABC . Its legs are of lengths 2, 2 and 3. What type of triangle is it?

- (a) right
- (b) obtuse
- (c) acute
- (d) dodecahedron

12. Find the area of a regular hexagon with a side length of 4.

- (a) 24 times the square root of 3
- (b) 3.14159
- (c) 8
- (d) the square root of 24 cubed

13. Find x and y , $ABCDEF$ is a regular hexagon. The side lengths are as follows

$$x + y, 2x, 6 + x, y + 3, 17 - 8 + 24y - 3 + 3 - 24y, (2x + 2y)/2.$$

- (a) $x = 15, y = 28$
- (b) $x = 6, y = 3$
- (c) $x = 3, y = 6$
- (d) $x = 12, y = 30$

14. GHI is an equiangular triangle. $GH = 30 + x - 3, GI = 12x - 6, HI = 10x$. Solve for x .

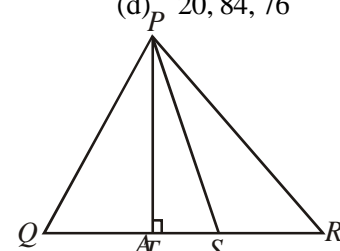
- (a) $x = 7$
- (b) $x = 60$
- (c) $x = 2$
- (d) $x = 3$

15. Find the 3 angles of a triangle with side lengths 40, 40 times the square root of 3, and 80.

- (a) 10, 140, 30
- (b) 45, 45, 90
- (c) 30, 60, 90
- (d) 20, 84, 76

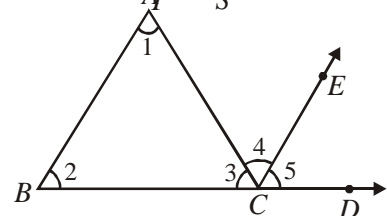
16. In figure, PS is the bisector of $\angle QPR$ and $PT \perp QR$. Show that

$$\angle TPS = \frac{1}{2}(\angle Q - \angle R)$$



17. In figure, side BC of $\triangle ABC$ is produced to form ray BD as shown. Ray CE is drawn parallel to BA . Show directly, without using the angle sum property of a triangle that $\angle ACD = \angle A + \angle B$ and deduced that

$$\angle A + \angle B + \angle C = 180^\circ.$$



18. Prove that the angle between internal bisector of one base angle and the external bisector of the other base angle of a triangle is equal to one-half of the vertical angle.
19. In a quadrilateral $ABCD$, AO and BO are the bisector of $\angle A$ and $\angle B$ respectively. Prove that $\angle AOB = \frac{1}{2}(\angle C + \angle D)$.
20. ABC is a triangle. The bisector of the exterior angle at B and the bisector of $\angle C$ intersect each other at D . Prove that $\angle D = \frac{1}{2} \angle A$.

Answer

- | | | | | |
|---------|---------|---------|---------|---------|
| 1. (a) | 2. (b) | 3. (b) | 4. (a) | 5. (b) |
| 6. (c) | 7. (c) | 8. (d) | 9. (b) | 10. (b) |
| 11. (b) | 12. (a) | 13. (c) | 14. (d) | 15. (c) |