

CHAPTER -5 Lines and Angles | CLASS 7TH

MATHS IMPORTANT QUESTIONS

Important Questions

Question 1.

Find the angles which is 15 of its complement.

Solution:

Let the required angle be x°

its complement = $(90 - x)^\circ$

As per condition, we get

$$\begin{aligned} & \frac{1}{5} \text{ of } (90 - x)^\circ = x^\circ \\ \Rightarrow & \frac{1}{5} \times (90 - x)^\circ = x^\circ \\ \Rightarrow & \frac{1}{5} \times 90^\circ - \frac{1}{5} \times x^\circ = x^\circ \\ \Rightarrow & 18^\circ - \frac{1}{5}x^\circ = x^\circ \\ \Rightarrow & x^\circ + \frac{1}{5}x^\circ = 18^\circ \\ \Rightarrow & \frac{6}{5}x^\circ = 18^\circ \\ \therefore & x^\circ = 18 \times \frac{5}{6} = 15^\circ \end{aligned}$$

Thus, the required angle be 15° .

Question 2.

Find the angles which is 23 of its supplement.

Solution:

Let the required angle be x° .

its supplement = $(180 - x)^\circ$

As per the condition, we get

23 of $(180 - x)^\circ = x^\circ$

$$\begin{aligned} \Rightarrow & \frac{2}{3} \times (180 - x)^\circ = x^\circ \\ \Rightarrow & \frac{2}{3} \times 180^\circ - \frac{2}{3} \times x^\circ = x^\circ \\ \Rightarrow & 120^\circ - \frac{2}{3}x^\circ = x^\circ \\ \Rightarrow & x^\circ + \frac{2}{3}x^\circ = 120^\circ \\ \Rightarrow & \frac{5}{3}x^\circ = 120^\circ \\ \therefore & x^\circ = 120^\circ \times \frac{3}{5} = 72^\circ \end{aligned}$$

Thus, the required angle be 72° .

Question 3.

Find the value of x in the given figure.

Solution:

$\angle POR + \angle QOR = 180^\circ$ (Angles of linear pair)

$$\Rightarrow (2x + 60^\circ) + (3x - 40)^\circ = 180^\circ$$

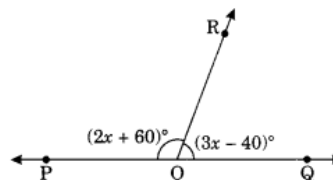
$$\Rightarrow 2x + 60 + 3x - 40 = 180^\circ$$

$$\Rightarrow 5x + 20 = 180^\circ$$

$$\Rightarrow 5x = 180 - 20 = 160$$

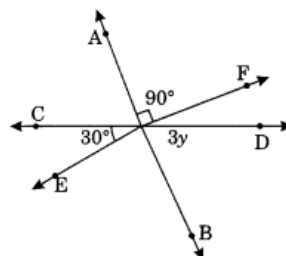
$$\Rightarrow x = 32$$

Thus, the value of x = 32.



Question 4.

In the given figure, find the value of y.



Solution:

Let the angle opposite to 90° be z.

$z = 90^\circ$ (Vertically opposite angle)

$3y + z + 30^\circ = 180^\circ$ (Sum of adjacent angles on a straight line)

$$\begin{aligned} \Rightarrow 3y + 90^\circ + 30^\circ &= 180^\circ \\ \Rightarrow 3y + 120^\circ &= 180^\circ \\ \Rightarrow 3y &= 180^\circ - 120^\circ = 60^\circ \\ \Rightarrow y &= 20^\circ \end{aligned}$$

Thus the value of $y = 20^\circ$.

Question 5.

Find the supplements of each of the following:

- (i) 30°
- (ii) 79°
- (iii) 179°
- (iv) x°
- (v) 25 of right angle

Solution:

- (i) Supplement of $30^\circ = 180^\circ - 30^\circ = 150^\circ$
- (ii) Supplement of $79^\circ = 180^\circ - 79^\circ = 101^\circ$
- (iii) Supplement of $179^\circ = 180^\circ - 179^\circ = 1^\circ$
- (iv) Supplement of $x^\circ = (180 - x)^\circ$
- (v) Supplement of 25 of right angle
 $= 180^\circ - 25 \times 90^\circ = 180^\circ - 36^\circ = 144^\circ$

Question 6.

If the angles $(4x + 4)^\circ$ and $(6x - 4)^\circ$ are the supplementary angles, find the value of x .

Solution:

$(4x + 4)^\circ + (6x - 4)^\circ = 180^\circ$ (\because Sum of the supplementary angle is 180°)

$$\Rightarrow 4x + 4 + 6x - 4 = 180^\circ$$

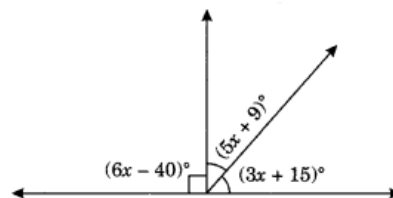
$$\Rightarrow 10x = 180^\circ$$

$$\Rightarrow x = 18^\circ$$

Thus, $x = 18^\circ$

Question 7.

Find the value of x .



Solution:

$(6x - 40)^\circ + (5x + 9)^\circ + (3x + 15)^\circ = 180^\circ$ (\because Sum of adjacent angles on straight line)

$$\Rightarrow 6x - 40 + 5x + 9 + 3x + 15 = 180^\circ$$

$$\Rightarrow 14x - 16 = 180^\circ$$

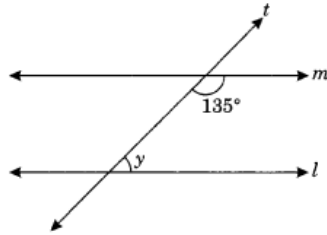
$$\Rightarrow 14x = 180 + 16 = 196$$

$$\Rightarrow x = 14$$

Thus, $x = 14$

Question 8.

Find the value of y .



Solution:

$l \parallel m$, and t is a transversal.

$y + 135^\circ = 180^\circ$ (Sum of interior angles on the same side of transversal is 180°)

$$\Rightarrow y = 180^\circ - 135^\circ = 45^\circ$$

Thus, $y = 45^\circ$