

Solutions of Worksheet - 5

class - X

A-5

MATHS

1 (i) Given $\theta = 30^\circ$ $m = ?$

\therefore slope (m) = $\tan \theta$

$\therefore m = \tan 30^\circ = \frac{1}{\sqrt{3}}$ ✓

(ii) $\therefore \theta = 60^\circ$ $m = ?$ $\therefore m = \tan \theta$

$\therefore m = \tan 60^\circ$

$\therefore m = \sqrt{3}$ ✓

2 (i) $\theta = ?$ $m = \sqrt{3}$

$\therefore m = \tan \theta$

$\therefore \sqrt{3} = \tan \theta$

$\tan 60^\circ = \tan \theta$

$\therefore \theta = 60^\circ$ ✓

(ii) $\theta = ?$ $m = 1$

$\therefore m = \tan \theta$

$\therefore 1 = \tan \theta$

$\tan 45^\circ = \tan \theta$

$\therefore \theta = 45^\circ$ ✓

3 (i) $(-2, -3)$ and $(1, 2)$, $m = ?$

$\therefore m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{2 - (-3)}{1 - (-2)}$

$m = \frac{2+3}{1+2} = \frac{5}{3}$ ✓

(ii) $(-4, 0)$ and origin $(0, 0)$, $m = ?$

$\therefore m = \frac{0-0}{0+4} = \frac{0}{4} = 0$ ✓

4. Eqⁿ of line = ? $\theta = 45^\circ$, $c = 5$

$\therefore m = \tan \theta \Rightarrow m = \tan 45^\circ = 1 \therefore m = 1$ ✓

Req. eqⁿ: $y = mx + c \Rightarrow y = 1x + 5$ or $x - y + 5 = 0$ ✓

5. Eqⁿ of line = ? $\theta = 60^\circ$, point $(-2, 5)$

$\therefore m = \tan \theta \Rightarrow m = \tan 60^\circ = \sqrt{3} \therefore m = \sqrt{3}$ ✓

\therefore Req. eqⁿ: $y - y_1 = m(x - x_1)$

$y - 5 = \sqrt{3}(x - (-2))$

$y - 5 = \sqrt{3}(x + 2) \Rightarrow y - 5 = \sqrt{3}x + 2\sqrt{3}$

$\Rightarrow y = \sqrt{3}x + 2\sqrt{3} + 5$

or $\sqrt{3}x - y + 2\sqrt{3} + 5 = 0$ ✓

6. Eq. of line = ? $c = 2$, $m = 3$

$\therefore y = mx + c \Rightarrow y = 3x + 2$ or $3x - y + 2 = 0$ ✓

7. Eqⁿ of line = ? $c = -1$, $\theta = 45^\circ$

$\therefore m = \tan \theta = \tan 45^\circ = 1 \therefore m = 1$ ✓

Req. eqⁿ: $y = mx + c$

$\Rightarrow y = 1x + (-1)$

$y = x - 1$

or $x - y - 1 = 0$ ✓