

$$\textcircled{1} |4x+5| = |x+9|,$$

Sol.

$$4x+5 = x+9$$

$$3x = 4$$

$$x = \frac{4}{3}$$

or

$$4x+5 = -(x+9)$$

$$4x+5 = -x-9$$

$$5x = -14$$

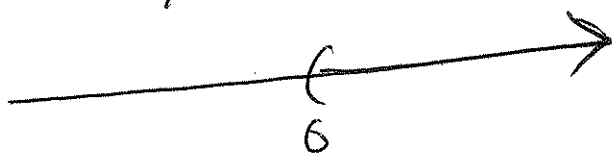
$$x = \frac{-14}{5}$$

Sol is  $\left\{\frac{4}{3}, \frac{-14}{5}\right\}$ ,  $\textcircled{C}$

$$\textcircled{2} 8x+2 > 7x+8$$

Sol.

$$x > 6$$



or  $(6, \infty)$

Sol is  $\textcircled{A}$

$$\textcircled{3} \frac{2}{3}x = \frac{3}{7}$$

Sol.  $x = \frac{(3)(3)}{(2 \times 7)} = \frac{9}{14}$

Sol is  $\textcircled{D}$

$$\textcircled{4} (-9-6i)(2+i)$$

Sol.

$$= -18 - 9i - 12i - 6i^2$$

$$= -18 - 21i - 6(-1)$$

$$= -18 - 21i + 6$$

$$= -12 - 21i$$

Sol is  $\textcircled{B}$

$$(5) |x-3| < 7,$$

Sol.

$$-7 < x-3 < 7$$

$$-7+1 < x-3+1 < 7+1$$

$$-6 < x-2 < 8$$

$$a = -6$$

$$b = 8$$

Sol is (A)

$$(6) x^6 + 7x^3 - 8 = 0$$

let  $u = x^3$ ,

$$u^2 = (x^3)^2 = x^6.$$

$$u^2 + 7u - 8 = 0$$

$$(u+8)(u-1) = 0$$



$$u = -8$$

$$x^3 = -8$$

$$x = \sqrt[3]{-8} = -2$$

$$x = -2$$

Sol.  $\{-2, 1\}$

(C)

$$u = 1$$

$$x^3 = 1$$

$$x = \sqrt[3]{1} = 1$$

$$x = 1$$

$$\textcircled{7} \quad r = \sqrt{15}; \quad (h, k) = (-7, 4)$$

$$(X-h)^2 + (Y-k)^2 = r^2$$

$$(X - (-7))^2 + (Y - 4)^2 = (\sqrt{15})^2$$

$$(X + 7)^2 + (Y - 4)^2 = 15$$

Sol. is  $\textcircled{C}$

$$\textcircled{8} \quad \text{Given } Y = ZX,$$

Our line contains  $(2, 1)$  and has slope equal to  $\underline{Z}$ .

$$\text{Then } (Y - 1) = (Z)(X - 2)$$

$$Y - 1 = ZX - 4$$

$$Y = ZX - 3$$

Sol. is  $\textcircled{C}$

$$\textcircled{9} \quad \text{Given } Y_1 = \frac{1}{2}x + 8; \quad \text{Find } Y_2 \perp Y_1 \text{ containing } (4, -4).$$

$$\text{Then } Y - (-4) = -2(X - 4)$$

$$Y + 4 = -2X + 8$$

$$Y = -2X + 4$$

Sol. is  $\textcircled{B}$ .

$$(10) P_1 = (0.6, -0.3), P_2 = (1.9, 2.2)$$

$$P_m = \left( \frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right) = \left( \frac{2.5}{2}, \frac{1.9}{2} \right) = (1.25, 0.95)$$

Sol, is (C).

$$(11) \text{ If } x < 5, \text{ then } x - 5 < 0$$

Sol is (D)

$$(12) 2x^2 = -10x - 2$$

$$\text{then } 2x^2 + 10x + 2 = 0$$

$$x^2 + 5x + 1 = 0$$

$$x = \frac{-5 \pm \sqrt{25 - 4}}{2}$$

$$x = \frac{-5 \pm \sqrt{21}}{2}$$

Sol is (A)

$$(13) Y = kX$$

$$0.4 = k(1.6)$$

$$k = \frac{0.4}{1.6} = 0.25$$

$$Y = (0.25)X$$

14

	hours to do the job	Part of the job done in 1 hour
Tracy	21	$\frac{1}{21}$
Trainee	$t$	$\frac{1}{t}$
together	13	$\frac{1}{13}$

then  $\frac{1}{21} + \frac{1}{t} = \frac{1}{13}$

$$\frac{1}{t} = \frac{1}{13} - \frac{1}{21}$$

$$\frac{1}{t} = \frac{8}{273}$$

So  $t = \frac{273}{8} = 34.125$

So is (C)