Aptitude Assignment - 3

Sol 1 $ax^2 + bx + c = 0$

Sum of roots $= -\frac{b}{a}$, product $= \frac{c}{a}$

A/c, $-\frac{b}{a} = -\frac{2c}{a}$

$\therefore 2x^2 - 3x - 2 = 0$, $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

$x = 2, -\frac{1}{2}$ — Another eq.

$\Rightarrow 3x^2 + 2x - 1 = 0$

$\Rightarrow x = -1, \frac{1}{3}$

$\therefore$ Two eq are :

$2x^2 - 3x - 2 = 0$ — (i)

$3x^2 + 2x - 1 = 0$ — (ii)

Sol 2. No, $2x + 3y = 12$ doesn't has a solution.

Sol 3. If lines are co-linear then, slope of them are same

$$\text{slope} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{2-1}{2-1} = 1$$

So, (1,1), (2,2) possible co-linear co-ordinates are

(1,1), (2,2), (3,3), (4,4) . . . .

$\Rightarrow$ Any point at form (n, n) where n is real number will be co-linear with (1,1) & (2,2)

Sol 4. $\dfrac{a^3 + b^3}{a^3 - b^3} = \dfrac{1}{1}$

multiplying both side by $a^3 - b^3$

$$a^6 - b^6 = a^3 - b^3$$

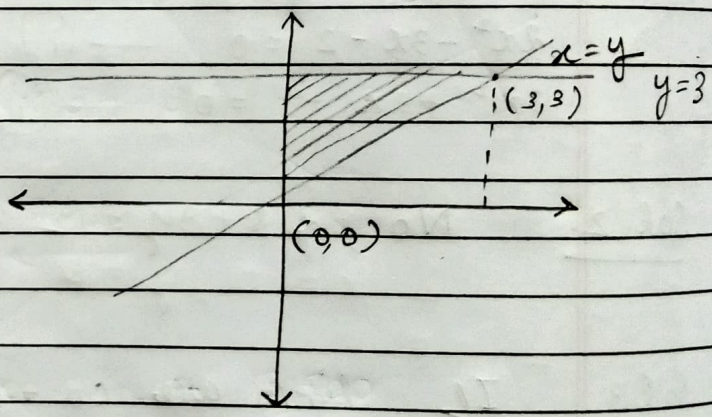
$$a^2 + b^2 + ab = a + b$$

$\because$ sol can be $a = 2, b = 1$ or $b = 3$ Ans ←

Sol 5

$y = x$

$y = 3$



$$\text{Area} = \frac{1}{2} \times l \times h$$

$$= \frac{1}{2} \times 3 \times 3$$

Area is = 4.5 sq. unit