* FX-7.2 :-

1. $\frac{2(4)+3(-1)}{2+3} = \frac{8-3}{5} = \frac{5}{5} = 1 = x.$

$\frac{2(-3)+3(7)}{2+3} = \frac{-6+21}{5} = \frac{15}{5} = 3 = y.$

2. For P, $x = 2$

$y = \frac{-5}{3}$

For Q, $x = 0$

$y = \frac{-7}{3}$

3. Nihasika, AD = 25m — Coordinates = (2, 25)
Preet, AD = 20m. — Coordinates = (8, 20)

Distance formula = $\sqrt{61}$ m.

$x = \frac{(2+8)}{2} = \frac{10}{2} = 5$

$y = \left(\frac{20+25}{2}\right) = \frac{45}{2} = 22.5$m.

4. $-1 = \frac{(6k-3)}{k+1}$

$-k-1 = 6k-3$

$k = \frac{2}{7} = 2:7.$

5. $y = 0$

x (Ratio) = 1:1

Division Point $= \left(\frac{-4(1)+1}{1+1}, \frac{5(1)-5}{1+1}\right) = \left(-\frac{3}{2}, 0\right)$

6. $\frac{x+1}{2} = \frac{7}{2}$ and $4 = \frac{5+y}{2}$

$\therefore x = 6$ and $y = 3$.

7. $(2, -3) = \left(\frac{x+1}{2}, \frac{y+4}{2}\right)$

$x+1 = 4 \quad \therefore x = 3$

$y+4 = 6 \quad \therefore y = -10$

$\therefore$ Coordinates of point $A = (3, -10)$

8. $AP = \frac{3}{7} AB$ $\quad AP : PB = 3:4$

Coordinates of $P = \left(\frac{3(2)+4(-2)}{3+4}, \frac{3(-4)+4(2)}{3+4}\right) = \left(\frac{-2}{7}, \frac{-20}{7}\right)$

9. $X = \left(-1, \frac{7}{2}\right)$

$Y = (0, 5)$

$Z = \left(1, \frac{13}{2}\right)$

10. $AC = 4\sqrt{2}$

$BD = 6\sqrt{2}$

$\therefore$ Area of rhombus $ABCD = \frac{1}{2} \times 4\sqrt{2} \times 6\sqrt{2}$

$= \underline{\underline{24}}$ sq units.