

3. Given  $P(x) \equiv Q(x)$

→ So, coefficients of  $x^3$ :  $a^2 - b^2 = 9$  ∴  
 $(a-b)(a+b) = 9 \dots \textcircled{1}$

→ Coefficients of  $x^2$ :  $(a+b) = 9 \dots \textcircled{2}$

Sub. eqn  $\textcircled{2}$  in  $\textcircled{1}$  to get.

$$(a-b)(9) = 9$$

So,  $a-b = 1$ .

hence,  $\begin{cases} a+b=9 \\ a-b=1 \end{cases}$  add

$$2a = 10$$

$$\boxed{a = 5}$$

sub. value of  $a$  in eqn  $\textcircled{2}$ .

$$a+b=9$$

$$5+b=9$$

$$\boxed{b = 4}$$

→ Coefficients of  $x$ :  $c-1=0$

$$\boxed{c = 1}$$

→ Constants:  $2d-1=5$

$$2d = 6$$

$$\boxed{d = 3}$$

4. Given  $EFGH$  is a parallelogram

So,  $\vec{EF} = \vec{HG}$

$$x_{EF} = x_{HG}$$

$$x_F - x_E = x_G - x_H$$

$$5 - 3 = 1 - x_H$$

$$\boxed{x_H = -1}$$

$$y_{EF} = y_{HG}$$

$$y_F - y_E = y_G - y_H$$

$$-3 - 2 = 4 - y_H$$

$$\boxed{y_H = 9}$$

Thus,  $H(-1, 9)$ .