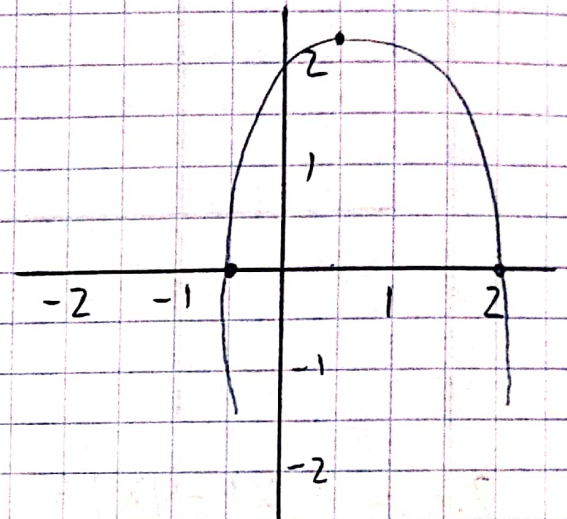Yohanes Dimas Pratama
All.2021.13254

1. $p(x) = -x^2 + x + 2$
→ $D = b^2 - 4ac$
$= 1 - 4(-1 \cdot 2)$
$= 1 + 8$
$= 9$

→ Titik puncak $= -\dfrac{b}{2a}, -\dfrac{D}{4a}$

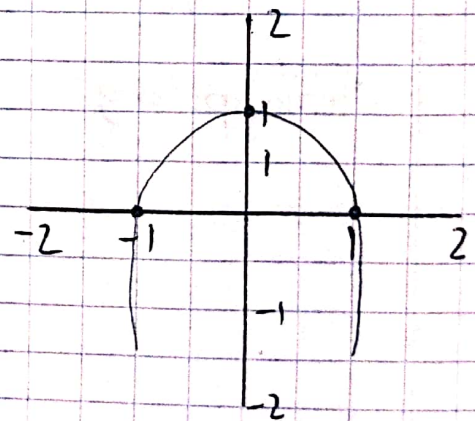$= -\dfrac{1}{(-2)}, -\dfrac{9}{(-4)}$

$= \dfrac{1}{2}, \dfrac{9}{4}$

→ Titik potong $= (x+1)(-x+2)$
$= x = -1 \quad x = 2$

2. $f(x) = -x^2 + 1$
→ $D = b^2 - 4ac$
$= 0 - 4(-1 \cdot 1)$
$= 4$

→ Titik puncak $= -\dfrac{b}{2a}, -\dfrac{D}{4a}$

$= -\dfrac{0}{-2}, -\dfrac{4}{-4}$

$= 0, 1$

→ Titik potong $= x_1 = \dfrac{-b + \sqrt{D}}{2a} = \dfrac{0 + 2}{-2} = -1$

$x_2 = \dfrac{-b - \sqrt{D}}{2a} = \dfrac{0 - 2}{-2} = 1$

3. $F(x) = -X^2 + 2X$

$\rightarrow D = b^2 - 4ac$
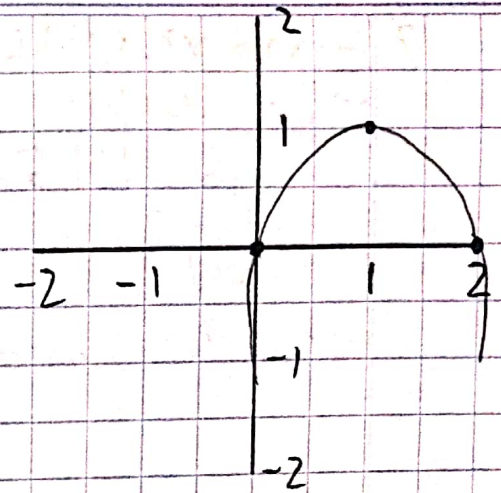
$= 4 - 4(-1 \cdot 0)$

$= 4$

$\rightarrow$ Titik puncak $= -\dfrac{b}{2a}, -\dfrac{D}{4a}$

$= -\dfrac{2}{-2}, -\dfrac{4}{-4}$

$= 1, 1$

$\rightarrow$ Titik potong $= X_1 = \dfrac{-b + \sqrt{D}}{2a} = \dfrac{-2+2}{-2} = 0$

$X_2 = \dfrac{-b - \sqrt{D}}{2a} = \dfrac{-2-2}{-2} = 2$

1. $F(x) = X^2 - 4X + 4$

$\rightarrow D = b^2 - 4ac$

$= 16 - 4(1 \cdot 4)$

$= 0$

$\rightarrow$ Titik puncak $= -\dfrac{b}{2a}, -\dfrac{D}{4a}$

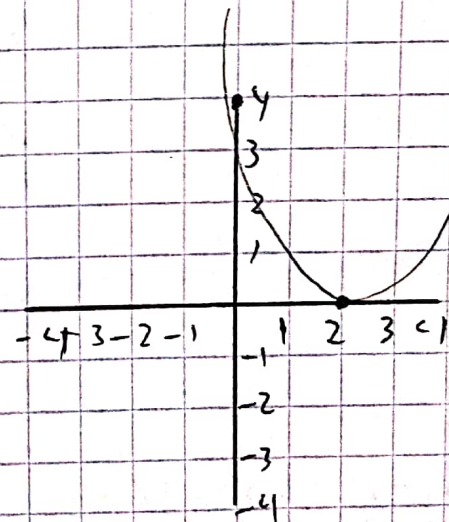$= -\dfrac{(-4)}{2}, -\dfrac{0}{4}$

$= 2, 0$

$\rightarrow$ Titik potong $= (X - 2)(X - 2)$

$X = 2$

Sumbu $X = 2, 0$

$X = 0$

$F(0) = 0^2 - 4(0) + 4$

$= 4$

Sumbu $Y = 0, 4$

2. $F(x) = x^2 - 4x + 5$

$\rightarrow D = b^2 - 4ac$

$= 16 - 4(1 \cdot 5)$

$= 16 - 20$

$= -4$

$\rightarrow$ Titik puncak $= -\dfrac{b}{2a}, -\dfrac{D}{4a}$

$= -\dfrac{(-4)}{2}, -\dfrac{(-4)}{4}$

$= 2, 1$

$\rightarrow$ Titik potong $=$ Misal $m = 1$

$X_1 = \left(-\dfrac{b}{2a}\right) + m = \left(-\dfrac{(-4)}{2}\right) + 1 = 3$

$X_2 = \left(-\dfrac{b}{2a}\right) - m = \left(-\dfrac{(-4)}{2}\right) - 1 = 1$

$F(X_1) = F(3) = 3^2 - 4(3) + 5 \qquad X_1 = (3, 2)$

$= 9 - 12 + 5$

$= 2$

$F(X_2) = F(1) = 1^2 - 4(1) + 5 \qquad X_2 = (1, 2)$

$= 1 - 4 + 5$

$= 2$

3. $F(x) = -x^2 + 2x - 2$

$\rightarrow D = b^2 - 4ac$

$= 4 - 4(-1 \cdot (-2))$

$= 4 - 8$

$= -4$

$\rightarrow$ Titik puncak $= -\dfrac{b}{2a}, -\dfrac{D}{4a}$

$= -\dfrac{2}{(-2)}, -\dfrac{(-4)}{(-4)}$

$= 1, -1$
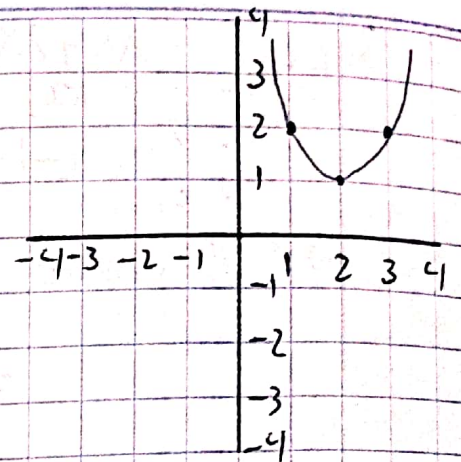
$\rightarrow$ Titik potong $=$ Misal $m = 1$

$X_1 = \left(-\dfrac{b}{2a}\right) + m = \left(-\dfrac{2}{(-2)}\right) + 1 = 2$

$$F(X_1) = F(2) = (-2)^2 + 2(2) - 2$$
$$= 4 + 4 - 2$$
$$= 6$$

$$X_1 = (2,6)$$

$$X_2 = \left(-\frac{b}{2a}\right) - m = \left(-\frac{2}{(-2)}\right) + 1 = 0$$

$$F(X_2) = F(0) = (-0)^2 + 2(0) - 2$$
$$= -2$$

$$X_2 = (0,-2)$$