

(1)

الف) $y = 2x^2 - 4x + 1$

$a > 0$
Min

ext $\left| \begin{array}{c} \frac{-b}{2a} \\ \frac{-\Delta}{4a} \end{array} \right. \rightarrow \left| \begin{array}{c} 1 \\ -1 \end{array} \right.$

ب) $y = -2x^2 + 4x - 5$

$a < 0$
Max

ext $\left| \begin{array}{c} \frac{3}{2} \\ -\frac{11}{2} \end{array} \right.$

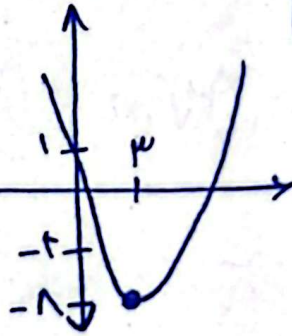
الف) $y = x^2 - 4x + 1$

Min

ext $\left| \begin{array}{c} 2 \\ -4 \end{array} \right.$

$\begin{bmatrix} 0 \\ 0 \\ 1 \end{bmatrix} \begin{bmatrix} 1 \\ -4 \end{bmatrix}$

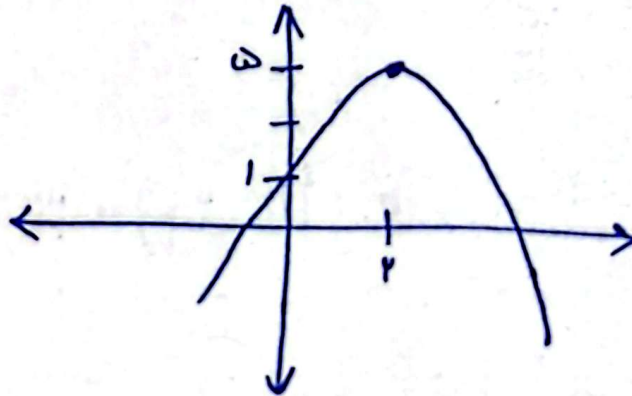
(2)



ب) $y = -x^2 + 4x + 1$

ext $\left| \begin{array}{c} 2 \\ 0 \end{array} \right.$

$\begin{bmatrix} 0 \\ 1 \end{bmatrix} \begin{bmatrix} 2 \\ 4 \end{bmatrix}$



$$r a^r + k x^r - q x - r = 0$$

$$(1-\beta)(\beta) = r \rightarrow (\beta-r)(\beta+1) = 0$$

$$\omega \beta = -r$$

$$\omega = 1 - \beta$$

$$\alpha + \beta = 1$$

$$\beta = -1 \rightarrow \omega = r$$

$$\beta = r \rightarrow \omega = -1$$

$$-1/r \approx \omega, \quad -r + k + q \underbrace{-r}_{\omega} = 0 \Rightarrow \underline{k = -r}$$

$$x^r - r m x + m = 0$$

$$|\sqrt{\alpha} - \sqrt{\beta}| = 1 \quad (\sqrt{\alpha} - \sqrt{\beta})^r = 1$$

$$\alpha + \beta - r \sqrt{\alpha \beta} = 1 \rightarrow (r \sqrt{m} + 1)(\sqrt{m} - 1) = 0 \rightarrow m = 1 \checkmark$$

$$r x^r - x - 1 = 0 \rightarrow \alpha \beta = \frac{c}{a} = \frac{-1}{r}$$

$$r \sqrt{m} = -1 \quad \alpha$$

$$S = \frac{m \left(\frac{\sqrt{\Delta}}{|a|} \right)}{r} = \frac{r}{r}$$

$$m \left(\sqrt{(m-r)^r} \right) = r \rightarrow m (|m-r|) = r$$

$$m = r \checkmark$$

$$\rightarrow m = -1 \times$$

$$y = x^r - m x + 1 = x^r - r x + 1$$

$$\frac{-b}{ra} = \left(\frac{r}{r} \right)$$

$$y = ax^2 + px + q \rightarrow ay_0 \rightarrow y_{\min}$$

(9)

$$\Delta a^2 - 4a - 4a = 0$$

$$\leftarrow \frac{-\Delta}{2a} = \frac{V}{1}$$

$$\Delta = p^2 + 4q = 4r\omega \quad \textcircled{x} = \frac{V \pm \sqrt{4r\omega}}{1} \rightarrow r\omega$$

$$x_1 = \frac{V + r\omega}{1} \rightarrow \boxed{r} \checkmark$$

$$x_2 = \frac{V - r\omega}{1} \rightarrow \left(\frac{-11}{14} \right) \leftarrow x_2 < 0 \quad \times$$

$$x^2 - (a+1)x + a = 0$$

$$(a-1)^2 = f$$

-V

$$\frac{\sqrt{\Delta}}{2a} = r$$

$$((a-1) - r)(a-1+r) = 0$$

$$(a-r)(a+1) = 0$$

$$\begin{cases} a = -1 \quad \times \\ a = r \quad \checkmark \end{cases}$$

$$x^2 - (ra+1)x + b = 0$$

$$\sqrt{100 - 4b} = r$$

$$b = rf \rightarrow \boxed{b = rf} \checkmark$$

$$|P_2 - P_1| = |r\varepsilon - r| = 11$$

$$y = -ax^r + ax + r \rightarrow \left| \begin{array}{c} \frac{1}{r} \\ \frac{a+r}{r} \end{array} \right. \quad (1)$$

$$y = rbx^r - bx - 1 \rightarrow \left| \begin{array}{c} \frac{1}{r} \\ -(b+r) \end{array} \right.$$

$$\frac{rb}{r} - \frac{b}{r} - 1 = \frac{a+r}{r} \rightarrow a+r = -r \Rightarrow a = -1r$$

$$\frac{-a}{1r} + \frac{a}{r} + r = \frac{-(b+r)}{r} \rightarrow \frac{-a+ra+rr}{1r}$$

$$b+r = r \rightarrow b = -r \quad b-a = r$$

$$y = r\omega\alpha x^r + rx + \beta \rightarrow r\omega\alpha^r + r\omega + \beta = 0$$

$$r\omega\alpha\beta^r + r\beta + \beta = 0 \quad (9)$$

$$\omega\beta(\omega\alpha\beta + 1) = 0$$

$$\beta = 0$$

$$\frac{-r}{r\omega\alpha} \rightarrow r\omega\alpha^r = -r\alpha$$

$$\omega\alpha\beta + 1 = 0 \rightarrow \beta = -\omega\alpha$$

$$a+b = S \quad ab = P \quad (1.)$$

$$S = (a^2 + b^2 - 12) = S^2 - 2P - 12$$

$$P = a+b - 1 = S - 1 \rightarrow P = S - 1$$

$$S^2 - 2(S - 1) - 12 = S$$

$$S^2 = +2S + 10 \Rightarrow S^2 - 2S - 10 = 0$$

$$(S - 5)(S + 2) = 0 \quad S = 5$$

$$a+b = \underline{5} - 1 \quad S = -2$$