

الف)  $۲x^2 - ۴x + 1$

$\min \begin{cases} \frac{-b}{2a} = 1 \\ \frac{-\Delta}{4a} = -1 \end{cases}$

۱

۲

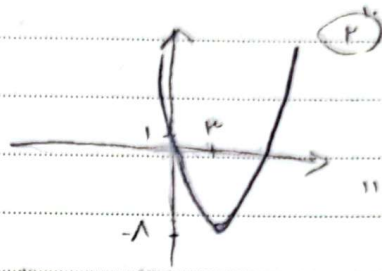
ب)  $-۲x^2 + ۳x - ۱$

$\max \begin{cases} \frac{۳}{۴} \\ \frac{-۳۱}{۸} \end{cases}$

الف)  $y = x^2 - ۴x + 1$

$\frac{-b}{2a} = ۲$

$\frac{-\Delta}{4a} = -1$

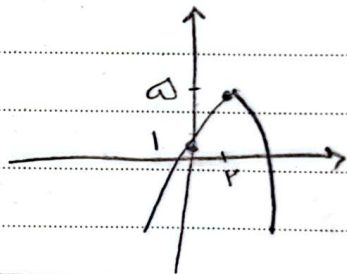


۲

ب)  $y = -x^2 + ۴x + 1$

$\frac{-b}{2a} = ۲$

$\frac{-\Delta}{4a} = ۱$



$\epsilon x^3 + kx^2 - 9x - ۲ = 0$

$\alpha + \beta = 1$

$\alpha\beta = -۲$

۳

۴

$\alpha + \beta + \theta = \frac{-k}{\epsilon} \Rightarrow 1 + \theta = \frac{-k}{\epsilon}$

$\alpha\beta\theta = \frac{۲}{\epsilon} = \frac{1}{\theta} \Rightarrow -۲\theta = \frac{1}{\theta} \Rightarrow \theta = \frac{-1}{2}$

$\Rightarrow \frac{k}{\epsilon} = \frac{-\epsilon}{\epsilon} \Rightarrow k = -1$

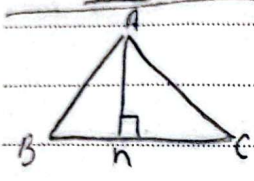
(5)

$$2r = \frac{r^2 + m^2}{2r + m} \Rightarrow \frac{r^2 + m^2}{r} = \frac{r^2 + m^2 + 2rm}{r + m} = 1$$

$$\frac{r^2 + m^2 + 2rm}{r} = \frac{r^2 + m^2 + 2rm}{r} = 1$$

$r^2 - 2m = m = 1$  /  $r^2 - m^2 - m = 0 \rightarrow r = \frac{m^2}{r}$

$r = \frac{-1}{r}$



$AB = c, BC = \frac{\sqrt{a^2}}{|a|}$

(6)

$$m \times \frac{\sqrt{m^2 + r^2 + r^2 m} - \lambda m}{r} = \frac{m \times \sqrt{(m-r)^2}}{r} = \frac{m \times |m-r|}{r}$$

$m |m-r| = r$

- $m < r \Rightarrow \emptyset$
- $m > r \Rightarrow m^2 - 2m - r = 0 \rightarrow m = -1$
- $m < r \Rightarrow -m^2 + 2m - r = 0 \rightarrow m = r$

$\frac{-b}{ra} = \frac{m}{r} \rightarrow \frac{-1}{r} = \frac{m}{r}$

(5)

$\min \Rightarrow a > 0 \Rightarrow \frac{-b}{ra} = \frac{-r}{ra}$

(4)

$$a \left( \frac{-r}{ra} \right)^2 + \left( r - \frac{-r}{ra} \right) + a = \frac{v}{\lambda} \Rightarrow \frac{r}{ra} - \frac{r}{ra} + a = \frac{v}{\lambda}$$

$$a - \frac{r}{ra} = \frac{v}{\lambda} \rightarrow \lambda a^2 - \lambda = va \Rightarrow \lambda a^2 - va - \lambda = 0$$

$a = r$

هو

$\frac{v+10}{14} = \frac{r}{r}$

4ra  
10r

$(x-a)(x-1) = 0 \rightarrow x=1 \rightarrow a = 10$

(۷)

$x^2 + bx + a = 0$

$\rightarrow \alpha + \beta = \alpha + \alpha + 1 = 10 \rightarrow \alpha = 9, \beta = 1 \rightarrow b = 10$

$b - a = 10 - 10 = 0$

(۵)

(۱) 
$$\left| \begin{array}{l} \frac{-b}{1a} = \frac{-a}{-1a} = \frac{1}{1} \\ \frac{-\Delta}{1a} = \frac{-(a^2 + 1a)}{-1a} = \frac{a+1}{1} \end{array} \right.$$

$\frac{b}{1} - \frac{b}{1} - 1 = \frac{a+1}{1}$

$a+1 = -1 \rightarrow a = -2$

(۵)

(۱)

(۲) 
$$\left| \begin{array}{l} \frac{-b}{1a} = \frac{b}{1b} = \frac{1}{1} \\ \frac{-\Delta}{1a} = \frac{-b^2 - 1b}{1b} = \frac{-b-1}{1} \end{array} \right.$$

$\frac{12}{14} + \frac{12}{1} + 1 = \frac{-b-1}{1}$

$\frac{12}{1} - 12 + 1 = \frac{-b-1}{1}$

$\frac{b}{1} = \frac{-12}{1} \rightarrow b = -12$

$b - a = -12 - (-12) = 0$

$$y = 2\omega \alpha x^2 + \epsilon x + \beta \quad (1)$$

$$\alpha + \beta = \frac{-\epsilon}{2\omega \alpha}$$

$$\alpha \beta = \frac{\beta}{2\omega \alpha} \Rightarrow 2\omega \alpha^2 = 1 \rightarrow \alpha^2 = \frac{1}{2\omega} \Rightarrow \alpha = \pm \frac{1}{\sqrt{2\omega}}$$

$\beta \neq 0$

$$\alpha = \frac{1}{\sqrt{2\omega}} \rightarrow \beta = \frac{-\epsilon}{\sqrt{2\omega}} - \frac{1}{\sqrt{2\omega}} = -1 \rightarrow \beta < \alpha \quad X$$

$$\alpha = -\frac{1}{\sqrt{2\omega}} \rightarrow \beta = \frac{-\epsilon}{-\sqrt{2\omega}} + \frac{1}{\sqrt{2\omega}} = 1 \rightarrow \beta > \alpha \quad \checkmark$$

$$y = -\omega x^2 + \epsilon x + 1$$

$$\left. \begin{aligned} \frac{-b}{2a} &= \frac{-\epsilon}{-2\omega} = \frac{\epsilon}{2\omega} > 0 \\ \frac{-\Delta}{4a} &= \frac{-(\epsilon^2 - 4\omega)}{-4\omega} = \frac{4 - \epsilon^2}{4\omega} > 0 \end{aligned} \right\} \rightarrow \text{دو جوابی}$$

$$a + b = a^2 + b^2 - 12 \quad (2)$$

$$ab = a + b - 1 \rightarrow a + b = ab + 1$$

$$a^2 + b^2 - 12 = ab + 1 \rightarrow a^2 + b^2 = ab + 13 \rightarrow (a+b)^2 - 2ab = ab + 13$$

$$(a+b)^2 - 2(a+b-1) = ab + 13 \rightarrow (a+b)^2 - 2(a+b) + 2 = ab + 13$$

$$(S-2)(S+1) = 0 \rightarrow \begin{cases} S = 2 \quad \checkmark \\ S = -1 \quad X \end{cases}$$

$$a + b = 2$$