

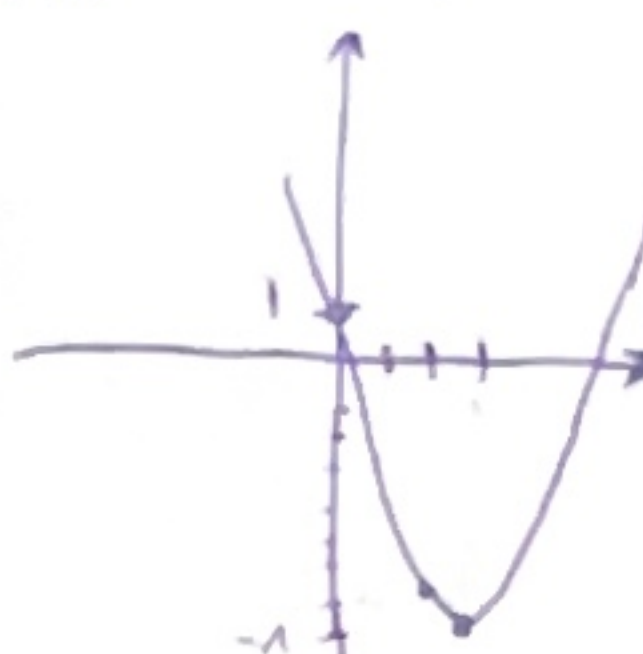
(۲۲)

$y = 2x^2 - 4x + 1$ $x = \frac{-b}{2a} = \frac{2}{4} = 1$ $y = \frac{-\Delta}{4a} = \frac{-(b^2 - 4ac)}{4a} = \frac{-(16 - 4 \cdot 2 \cdot 1)}{16} = \frac{-12}{16} = -\frac{3}{4}$ (الف ۱)
 $\left| \begin{matrix} 1 \\ -1 \end{matrix} \right| \rightarrow a > 0 \rightarrow \text{min}$ $S(1, -\frac{3}{4})$

$y = -2x^2 + 4x - 1$ $\frac{-b}{2a} = \frac{-4}{-4} = 1$ $\frac{-\Delta}{4a} = \frac{-(16 - 4 \cdot (-2) \cdot (-1))}{-16} = \frac{-12}{-16} = \frac{3}{4}$ (ب)
 $\left| \begin{matrix} 2 \\ -2 \end{matrix} \right| \rightarrow a < 0 \rightarrow \text{Max}$ $S(1, \frac{3}{4})$

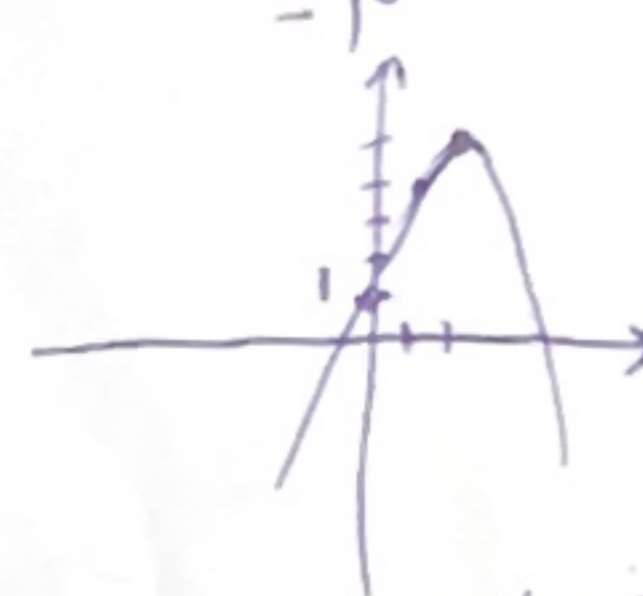
$y = x^2 - 6x + 1$ $\frac{-b}{2a} = \frac{6}{2} = 3$ $\frac{-\Delta}{4a} = \frac{-(36 - 4 \cdot 1 \cdot 1)}{4} = \frac{-32}{4} = -8$ (الف ۲)
 $S(3, -8)$
 $a > 0 \rightarrow \text{min}$

x	3	0
y	-8	1


 $\beta, \alpha = \frac{6 \pm \sqrt{36}}{2}$
 $\Delta > 0$

$y = -x^2 + 4x + 1$ $\frac{-b}{2a} = \frac{-4}{-2} = 2$ $\frac{-\Delta}{4a} = \frac{-(16 - 4 \cdot (-1) \cdot 1)}{-4} = \frac{20}{-4} = -5$ (ب)
 $S(2, -5)$
 $a < 0 \rightarrow \text{Max}$

x	2	0
y	-5	1


 $\Delta > 0$
 $\frac{-4 \pm \sqrt{20}}{-2}$

~~$x^2 + kx + 9 - 4 = 0$~~ $x^2 - 5x + 5 = 0$
 $-4 + k + 9 - 4 = k + 1 = 0 \rightarrow k = -1$
 $5 + k - 1 - 4 = k = 0$
 $(x-2)(x+1) = 0 \rightarrow x = 2, x = -1$

$x^2 - 2mx + m = 0$ $(\sqrt{\alpha} - \sqrt{\beta})^2 = 1 \rightarrow \alpha + \beta - 2\sqrt{\alpha\beta} = 1$
 $\alpha + \beta = \frac{-b}{a} = 2m$
 $\alpha \cdot \beta = \frac{c}{a} = m$
 $\Rightarrow 2m - 2\sqrt{m} = 1 \rightarrow t = \sqrt{m} \rightarrow 2t^2 - 2t - 1 = 0$
 $a+b+c=0 \rightarrow x = 1 = \sqrt{m} \rightarrow m = 1$

$\rightarrow (0, m), (x_1, 0), (x_2, 0)$
 $S = \frac{1}{2} \cdot |x_1 - m| \cdot |x_2|$ $\Delta = (m-2)^2 \rightarrow |x_1 - x_2| = \frac{\sqrt{\Delta}}{1} = |m-2|$
 $\frac{1}{2} \times \frac{|m-2|}{1} \times |m| = \frac{m}{2} \rightarrow |m(m-2)| = m \Rightarrow m^2 - 2m - m = 0$
 $m = -1$ $m = 3$

$$x_u = \frac{m}{p} \Rightarrow \begin{cases} x_u = \frac{m}{p} \\ x_u = -\frac{1}{p} \end{cases}$$

(8) $\frac{1}{p} > 1$

$$\frac{-\Delta}{pa} = \frac{9 - pa^2}{pa} = \frac{1}{1} \rightarrow -pa^2 - pa + 1 = 0$$

$$\Delta = pa^2 - 4(-pa)(1) = 10000$$

$$x = \frac{-b \pm \sqrt{\Delta}}{pa} = \frac{pa \pm 100}{-pa} \rightarrow \begin{cases} x = -1 \\ x = 1, 100 \end{cases}$$

$$a > 0 \rightarrow \text{min} \Rightarrow a = 1, 100 \rightarrow \text{min}$$

$$x^p - (a+1)x + a = 0 \rightarrow S = p+1 \Rightarrow \alpha=1, \beta=p \Rightarrow \alpha=p$$

$$x^p - 10x + b = 0 \rightarrow \text{جذور} = -10 \rightarrow \alpha = \beta = -9 \Rightarrow \frac{c}{a} = b = 10^p$$

$$b - a = 10^p - p = 10$$

$$y = -ax^p + ax + p \rightarrow \frac{-b}{pa} = \frac{-a}{p(a)} = \frac{1}{p} \rightarrow -a\left(\frac{1}{p}\right) + \frac{1}{p}a + p = p + \frac{a}{p}$$

$$S_1 \left(\frac{1}{p}, p + \frac{a}{p}\right)$$

$$p + \frac{a}{p} = pb\left(\frac{1}{p}\right) - b\left(\frac{1}{p}\right) - 1 = -1 \Rightarrow \frac{a}{p} = -p$$

$$y = pbx^p - bx - 1$$

$$S_2 \left(\frac{1}{p}, -\frac{b}{p} - 1\right)$$

$$\frac{-b}{pa} = \frac{1}{p} \rightarrow pb\left(\frac{1}{p}\right) - \frac{1}{p}b - 1 = -\frac{b}{p} - 1$$

$$-\frac{b}{p} - 1 = \frac{1}{p} + \frac{1}{p}x + p + 1 \Rightarrow \frac{b}{p} = -\frac{p}{p} \rightarrow b = -p^2$$

$$b - a = -p^2 - (-10) = -p^2$$

$$y = pda x^p + px + \beta \Rightarrow \frac{-b}{a} = \frac{-p}{pda} = \frac{\alpha + \beta}{1} \Rightarrow pda\alpha + pda\beta + p = 0$$

$$\frac{c}{a} = \frac{\beta}{pda} = \frac{\alpha \cdot \beta}{1}$$

$$pda\alpha = 1 \Rightarrow \alpha = \frac{1}{da}$$

$$y = -dx^p + px + 1 \rightarrow S\left(\frac{p}{d}, \frac{q}{d}\right)$$

$$\Delta = 15 - \frac{p^2}{d} = 1 \rightarrow \frac{p^2}{d} = 14$$

$$-\frac{1}{d} + 1 + d\beta + p = 0 \Rightarrow \beta = 1$$

$$\frac{1}{d} \rightarrow \beta = -1 \leftarrow \alpha > \beta$$

$$\textcircled{1} a + b = a^p + b^p - 10$$

$$\textcircled{2} a \cdot b = a + b - 1 \Rightarrow ab - a - b + 1 = 0 \rightarrow (a-1)(b-1) = 0$$

$$b = 1 \rightarrow a = 1$$

$$\textcircled{3} x + b = x^p + b^p - 10 \rightarrow b = b^p - 10 \rightarrow b^p - b - 10 = 0 \Rightarrow b = 10$$

$$a + b = p + 1 = 11$$