

$$y_{min} = \frac{-\Delta}{2a} = \frac{-b^2 + 4ac}{4a} = \frac{-16 + 16}{4} = \frac{0}{4} = 0$$

$a > 0 \Rightarrow \min$

$$x_{min} = \frac{-b}{2a} = \frac{-(-2)}{2 \times 2} = \frac{2}{4} = \frac{1}{2}$$

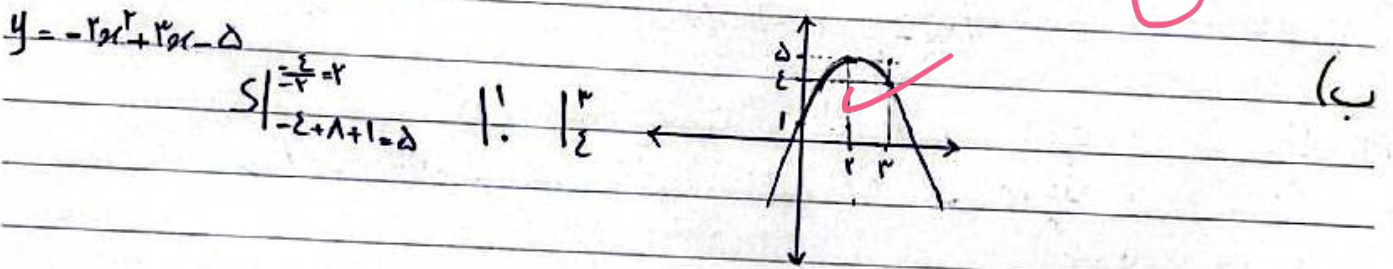
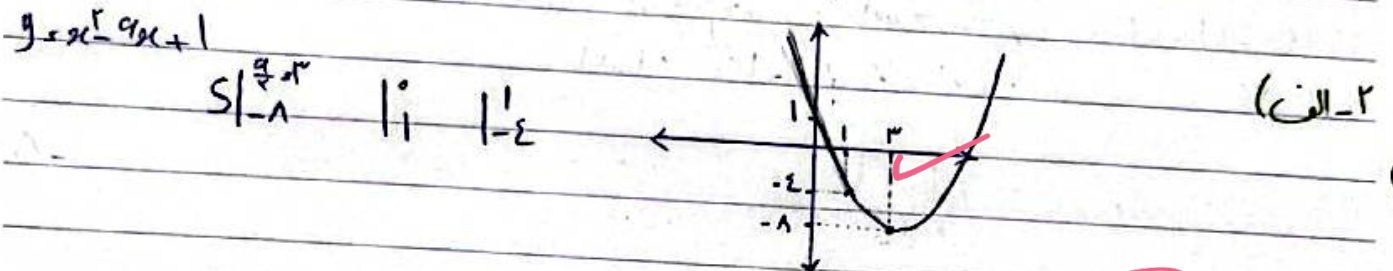
Min | 1/2

$$y_{max} = \frac{-\Delta}{4a} = \frac{-b^2 + 4ac}{4a} = \frac{-16 + 16}{4} = \frac{0}{4} = 0$$

$a < 0 \Rightarrow \max$

$$x_{max} = \frac{-b}{2a} = \frac{-(-2)}{2 \times 2} = \frac{2}{4} = \frac{1}{2}$$

Max | 1/2



3

$$x^2 + kx - 2x - 2 = 0$$

$S_1, \alpha, \beta = -2, P_1, \alpha + \beta = 1 \Rightarrow \alpha + 1 - \beta \Rightarrow \beta(1 - \beta) = -2 \Rightarrow \beta^2 - \beta - 2 = 0 \Rightarrow (\beta - 2)(\beta + 1) = 0$

$\beta = -1, \alpha = 2$

$\beta = 2, \alpha = -1 \Rightarrow \omega = -1, 2 \Rightarrow \begin{cases} \epsilon x + 1 + \epsilon k - 1 - 2 = 0 \Rightarrow k = -2 \\ -\epsilon + k + 1 - 2 = 0 \Rightarrow k = 1 \end{cases} \Rightarrow k = -2$

4

$$x^2 - 2mx + m = 0$$

$\sqrt{a} - \sqrt{b} = 1 \Rightarrow (\sqrt{a} + \sqrt{b})^2 = 1 \Rightarrow \alpha + \beta - 2\sqrt{\alpha\beta} = 1$

$2m - 2\sqrt{m} - 1 = 0 \Rightarrow (2\sqrt{m} + 1)(\sqrt{m} - 1) = 0 \Rightarrow \sqrt{m} = 1 \Rightarrow m = 1$

$m = 1 \Rightarrow x^2 - 2x - 1 = 0 \Rightarrow \alpha, \beta, S, C = \frac{-1}{2}$

5

$$S = \frac{m(\sqrt{\Delta})}{2a} = \frac{3}{2} \Rightarrow \frac{m(\sqrt{(m+2)^2 - 4m})}{2} = \frac{3}{2} \Rightarrow m(\sqrt{(m+2)^2 - 4m}) = 3$$

$m < 2 \Rightarrow m^2 - 2m + 2 = 0$ (no real roots)

$m > 2 \Rightarrow m^2 - 2m - 2 = 0 \Rightarrow m = 2 \pm \sqrt{6}$

$m = 2 \Rightarrow y = x^2 - 2x + 1 = x^2 - 2x + 1$

طول دایره = $\frac{b}{2a} = \frac{2}{2} = 1$

$$y = ax^2 + 2x + 9 \Rightarrow y_{\min} = \frac{V}{\lambda} \quad (a > 0) \quad \frac{\Delta}{\varepsilon a} = \frac{V}{\lambda} = \frac{4 + \varepsilon a^2}{\varepsilon a} = \frac{V}{\lambda} \Rightarrow -2(4 - \varepsilon a^2) = Va \quad (-9)$$

$$1a^2 - Va - 11 = 0 \quad \Delta = \varepsilon a + \varepsilon \times 11 \times 1 = 4r^2 \Rightarrow a_1, a_2 = \frac{V \pm \sqrt{4r^2}}{14}$$

$$\begin{cases} a_1 = \frac{r}{14} = r \\ a_2 = \frac{-11}{14} \quad (\frac{-11}{14} < 0) \text{ غن جی } \end{cases} \quad \left. \begin{matrix} a = r \\ \text{مستقیم} \end{matrix} \right\} \quad \text{پ}$$

$$x^2 - (a+1)x + a = 0 \quad (\text{ریشه‌ها در طبیعت متوالی}) \quad \frac{\sqrt{\Delta}}{|a|} = r \quad \sqrt{(a+1)^2 - \varepsilon a} = r$$

$$(a+1)^2 - \varepsilon a = r^2 \Rightarrow (a-1)^2 = \varepsilon \quad (a-1-r)(a-1+r) = 0 \Rightarrow (a-r)(a+1) = 0 \Rightarrow \begin{cases} a = -1 \times \\ a = r \Rightarrow b = r \end{cases} \quad (-V)$$

$$x^2 - (2a+1)x + b = 0 \quad (\text{ریشه‌ها در طبیعت متوالی}) \Rightarrow \frac{\sqrt{\Delta}}{|a|} = r \Rightarrow \sqrt{1 - \varepsilon b} = r \Rightarrow 1 - \varepsilon b = r^2 \Rightarrow b = \frac{1-r^2}{\varepsilon}$$

$$P_2 = b = r^2 \quad \text{مقدار اولی} = |P_2 - P_1| = |r^2 - r| = r \quad \text{پ}$$

① $y = -ax^2 + ax + r \quad S_1 \mid \begin{matrix} \frac{a}{\varepsilon} = -1 \\ \frac{a}{\varepsilon} + a + r = \frac{a+1}{\varepsilon} \end{matrix} \quad -\Lambda$

② $y = rbx^2 - bx - 1 \quad S_2 \mid \begin{matrix} \frac{rb}{\varepsilon} = \frac{1}{\varepsilon} \\ \frac{rb}{\varepsilon} + \frac{b}{\varepsilon} - 1 = \frac{(b+1)}{\Lambda} \end{matrix} \quad \text{پ}$

③ $\frac{rb}{\varepsilon} - \frac{b}{\varepsilon} - 1 = \frac{a+1}{\varepsilon} \Rightarrow a+1 = -1 \Rightarrow a+1 = -\varepsilon \Rightarrow a = -1-\varepsilon$

$$\frac{-a}{14} + \frac{a}{\varepsilon} + r = \frac{(b+1)}{\Lambda} \Rightarrow \frac{-a + \varepsilon a + 14r}{14} = \frac{(b+1)}{\Lambda} \Rightarrow -x = (b+1) \Rightarrow b = -4$$

$$b - a = -4 + 1 + \varepsilon = \varepsilon - 3$$

4

$a + b = S \quad \text{abs } P \quad S_1(a^2 + b^2 - 1) = S^2 - 2P - 1 \quad S^2 - 2(S-1) - 1 = S$

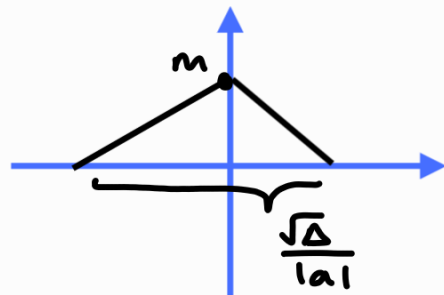
$P = a + b - 1 = S - 1 \Rightarrow P = S - 1 \mid S^2 - 2S - 1 = S$

$S^2 - 3S - 1 = 0 \quad (S-2)(S+1) = 0 \Rightarrow S = 2 \text{ یا } S = -1 \Rightarrow a + b = 2 \text{ یا } -1$

صورت ۲ عدد طبیعی نه‌ترانه ۲ - باره!

1, 1, 8

$$S = \frac{1}{r} x m x \frac{\sqrt{m^2 + r^2 - r m}}{r} = \left| \frac{r}{r} \right|$$



$$m|m-r| = |r| \rightarrow \begin{cases} m|m-r| = r & 1 \\ m|m-r| = -r & 2 \end{cases}$$

1

$$m \geq r \rightarrow m^2 - r m - r^2 = 0 \rightarrow m = r$$

$$\hookrightarrow m = -1$$

if $m < r \rightarrow \Delta < 0$ غَدَر

2

$$m \leq r \rightarrow -m^2 + r m + r^2 = 0 \rightarrow m = -1$$

$$\hookrightarrow m = r$$

if $m > r \rightarrow \Delta < 0$ غَدَر

$$m = r \rightarrow y = x^2 + r x + r \rightarrow x_S = -\frac{r}{r}$$

$$m = -1 \rightarrow y = x^2 - x + r \rightarrow x_S = -\frac{1}{r}$$

$$\frac{c}{a} = \frac{b}{r_0 a} = \alpha \beta \rightarrow \alpha^2 = \frac{1}{r_0} \rightarrow \alpha = \pm \frac{1}{a}$$

$$-\frac{b}{a} = \frac{-r}{r_0 a} = \alpha + \beta \rightarrow \alpha = \frac{1}{a} \rightarrow \beta = -1$$

$$\hookrightarrow \alpha = -\frac{1}{a} \rightarrow \beta = 1 \checkmark (\beta > \alpha)$$

$$y = -a x^2 + c x + 1 \rightarrow \begin{cases} x_S = \frac{r}{r_0} \text{ مثبت} \\ y_S = \frac{-\Delta}{4a} = \frac{-(14 + 20)}{-r} = \frac{4}{a} \text{ مثبت} \end{cases}$$

خبر راس من در ناصیه اول است

$$a^r + b^r - 1r = a + b \rightarrow s^r - 2p - 1r = s \quad \underline{10}$$

$$a + b - 1 = ab \rightarrow s - 1 = p \rightarrow s^r - 2s + r - 1r - s = 0$$

$$s^r - 3s - 1 = 0 \rightarrow (s - 5)(s + 2) = 0$$

$$\downarrow$$
$$\checkmark s = 5$$

$$\downarrow$$
$$s = -2x$$

ا، ب اعداد طبیعی هستند!