۱۴, ۲۵

$x = \frac{-b}{2a} = \frac{4}{2+2} = 1$

سید محمد لواسانی

(۱,۵)

$y = 2(1)^2 - 4(1) + 1 = -1$

$(1, -1)$ ✓ $a > 0$ min

ب) $x = \frac{-3}{-4}$

$y = 2x^2 + 9x - 5$

$\Delta = 9^2 - 4(2)(-5) = 121$

$y_s = \frac{-121}{8}$

$\left(\frac{3}{4}, \frac{-121}{8}\right)$ ✓

$a < 0$ max

(۴)

(۲)

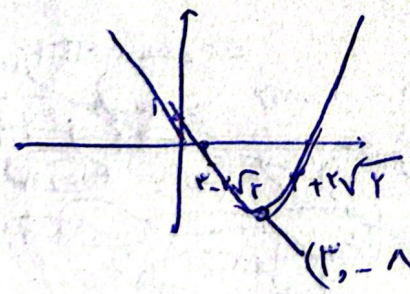
$y = x^2 - 4x + 1$

$\Delta = 16 - 4(1)(-1) = 20$

$x_s = \frac{4}{2} = 2$

$y_s = \frac{-20}{4} = -5$

$x = \frac{4 \pm \sqrt{20}}{2} = \frac{4 \pm 2\sqrt{5}}{2} = 2 \pm \sqrt{5}$



ب)

$y = -x^2 + 4x + 1$

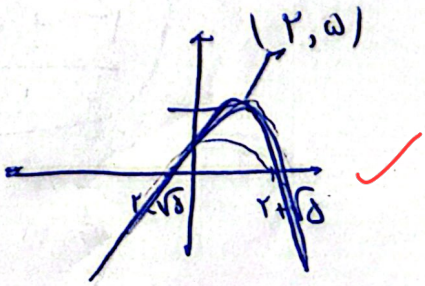
$\Delta = 16 - 4(-1)(1) = 20$

$x = \frac{-4 \pm \sqrt{20}}{-2} = \frac{-4 \pm 2\sqrt{5}}{-2}$

$2 \pm \sqrt{5}$

$x_s = \frac{-4}{-4} = 1$

$y_s = \frac{-20}{-4} = 5$



۴-

$$\sqrt{\alpha}-\sqrt{\beta}=1$$

(۲)

توان ۲

$$\alpha+\beta-2\sqrt{\alpha\beta}=1$$

$$3m-2\sqrt{m}=1 \Rightarrow m=1 \checkmark$$

$$4n^2-n-1=0$$

$$\frac{c}{a}=\frac{-1}{2}=\left\{\frac{-1}{2}\right\} \checkmark$$

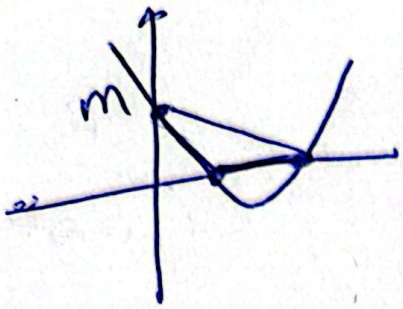
۳-

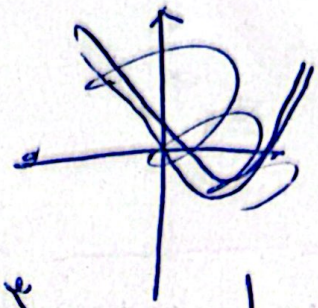
$$x^2-Sx+P=0 \rightarrow x^2-x+2=0 \rightarrow \begin{cases}\alpha=-1\\ \beta=2\end{cases}$$

۱- و ۲ باید در معادله درجه سوم صدق کنند

$$\alpha=-1: -4+K+V=0 \rightarrow K=-3$$

$$\beta=2: 32+4K-20=0 \rightarrow K=-3$$





(۳)

(۲)

$$S=\frac{۳}{۴} \Rightarrow \frac{۱}{۲}\times m\times\frac{\sqrt{\Delta}}{|a|}=\frac{۳}{۴}$$

(۴)

(۲)

$$\bullet\ \frac{-(\Delta)}{۴a}\Rightarrow \frac{-(۹-۴(a)(a۲)|}{۴a}=\frac{۷}{۸}$$

$$\frac{-۹+۴a^{۲}}{۴a}=\frac{۷}{۸}$$

$$۲۸a=-۷۲+۳۲a^{۲}$$

$$۰=۳۲a^{۲}-۲۸a-۷۲$$

$$a=\frac{۲۸\pm\sqrt{۷۸۴-۴(۳۲)(-۷۲)}}{۶۴}$$

$$a=\frac{۲۸\pm\sqrt{۱۰۰۰۰۰}}{۶۴}$$

$$\frac{m\times\sqrt{(-m-۲)^{۲}-۴(m)(۲)}}{۲}=\frac{۹}{۴}$$

$$\frac{m\times\sqrt{m^{۲}+۴+۴m-۸m}}{-۴m}=\frac{۹}{۴}$$

$$\frac{m\times\sqrt{(m-۲)^{۲}}}{۲}=\frac{۹}{۴}$$

$$\frac{|m-۲|}{۲}=\frac{۹}{۴}$$

$m<۲$ ، $m>۰$ $\Rightarrow$

$$\frac{m(-m+۲)}{۲}=\frac{۹}{۴}$$

$$-m^{۲}+۲m=۳$$

$$۰=m^{۲}-۲m+۳$$

✗

$$\frac{m\times(m-۲)}{۲}=\frac{۹}{۴}$$

$$۳=m^{۲}-۲m$$

$$۰=m^{۲}-۲m-۳$$

$$۰=(m-۳)(m+۱)$$

$$m=۳ \quad m=-۱$$

$$x_{۱}=\frac{۳}{۲}\ \checkmark$$

$$x_{۲}=\frac{-۱}{۲}$$

$$y=x^{۲}-۳x+۱$$

$$y=x^{۲}+x+۱$$

(۷)

α', β'

α, β

(۲)

$\alpha - \beta = 4$

$\sqrt{9a^2 + 1 + 6a - 4(b)(1)} = 3$ $\quad -4b$

$9a^2 + 6a - 4b + 1 = 9$

$81 + 18 - 4b + 1 = 9$

$4b = 91$

$b = 21$

$\frac{\sqrt{(-a-1)^2 - 4(a)(1)}}{1} = 2$

$\sqrt{a^2 + 1 + 2a - 4a} = 2$

$a^2 - 2a + 1 = 4$

$a(a-2) = 0$ $\quad a^2 - 2a + 1 = 4$

$a = 0$ $\quad a^2 - 2a - 3 = 0$

$a = 3$ $\quad (a-3)(a+1) = 0$

$a = 3$

$a = -1$ ✗

$\frac{b}{4b} = \frac{1}{4}$

$\frac{+\alpha}{-2a} = \frac{1}{2} = x_1$

(۸)

$y_1 = \frac{18(a^2 - 4(\frac{2}{3})(1-a))}{24a}$

$y_2 = -\frac{5}{4a}$

$-a \times \frac{1}{4} + \frac{a}{2} + 2$

(۷۵)

$\frac{-(b^2 - 4(-1)(2b))}{8b} = \frac{-b^2 - 8b}{8b}$

$-\frac{a}{4} + \frac{a}{2} + 2 = \frac{4b}{4} = \frac{b}{4}$

$= \frac{-b-8}{8} = \frac{b(b-b-8)}{8b}$

$y = \frac{(a^2 + 8a^2)}{4a} = \frac{9a^2}{4a} = \frac{9a}{4}$

$\frac{9a}{4} = \frac{2b}{4} - \frac{2b}{2} - 1$

$\frac{9a}{4} = -1 \rightarrow 9a = -4$

$a = \frac{-4}{9}$

$$\frac{-b-8}{8} = \frac{4}{9} \times \frac{1}{144} - \frac{4}{9} \times \frac{1}{4} + 2$$

$$\frac{-b-8}{8} = \frac{1}{36} - \frac{4}{36} + \frac{72}{144}$$

$$\frac{-b-8}{8} = \frac{99}{144} \frac{22}{12}$$

$$-12b - 96 = 184$$

$$-12b = 280$$

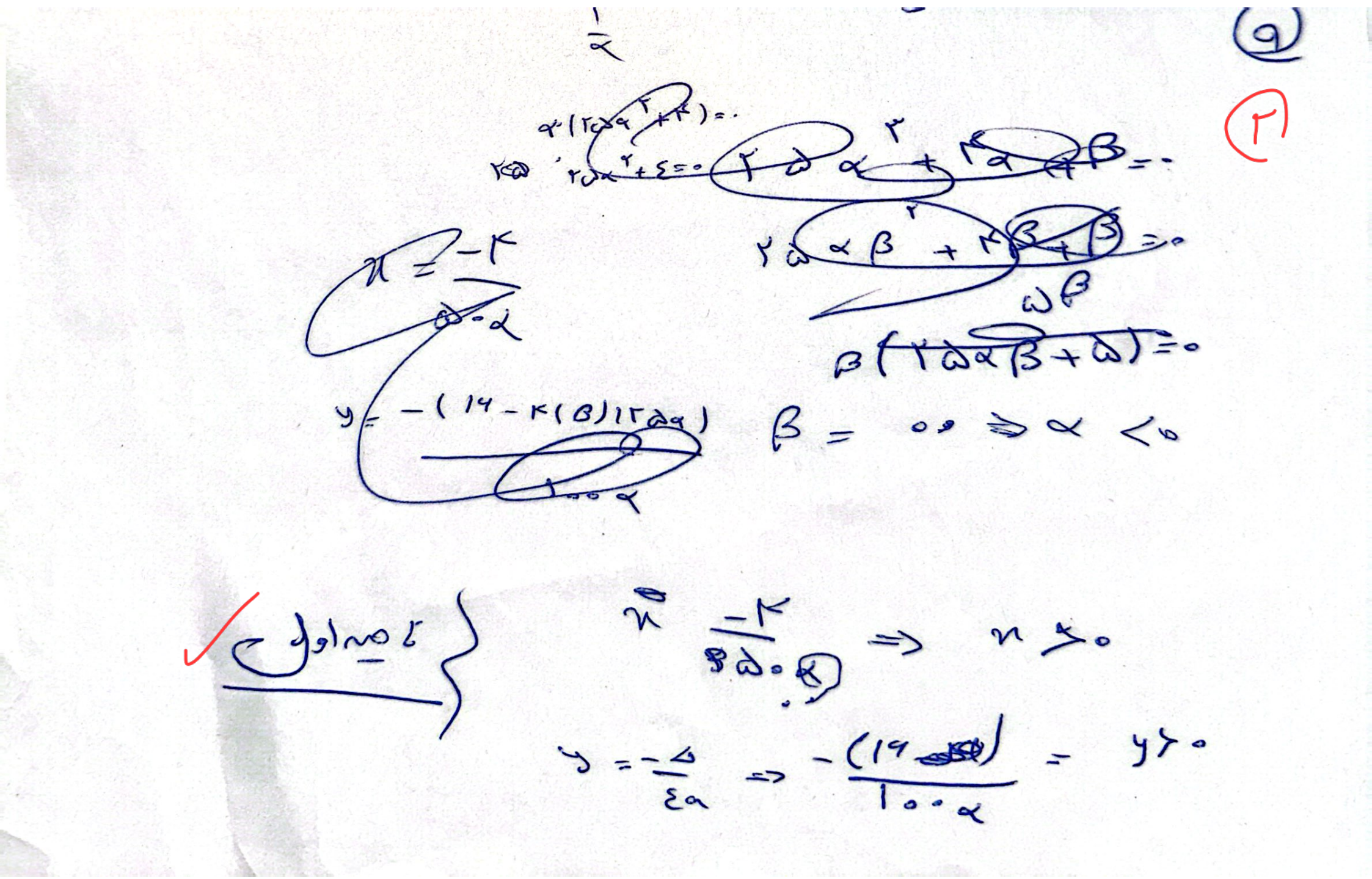
$$b = 23\frac{1}{3}$$

$$23\frac{1}{3} + \frac{4}{9} = \frac{7}{9}$$

(9)

$$x = \frac{-4}{50\alpha}$$

$$y = \frac{-(14 - 4(\beta)12\alpha q)}{100\alpha}$$



۸-

$S_1\left(\frac{1}{2}, \frac{a^2+8a}{4a}\right)$ $S_2\left(\frac{1}{4}, \frac{b^2+8b}{-8b}\right)$

$\frac{a}{4}+2 = \frac{b}{2}-\frac{b}{2}-1 \rightarrow a = -12$

$-\frac{a}{14}+\frac{a}{4}+2 = -\frac{b}{8}-1 \rightarrow b = -4$

$\left.\begin{array}{l}\\\\\end{array}\right\} b-a = \boxed{8}$

۱۰-

$S = -\frac{b}{a} = a^2+b^2-12 \rightarrow S^2-2P-12 = S$

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

$\rightarrow S^2-2(S-1)-12 = S \rightarrow \begin{cases} S=-2 & \times \\ S=5 & \checkmark \end{cases}$

a و b اعداد طبیعی اند!