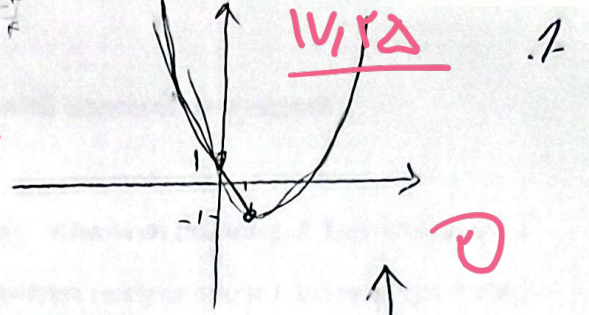


الف)  $y = kx^2 - kx + 1$

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

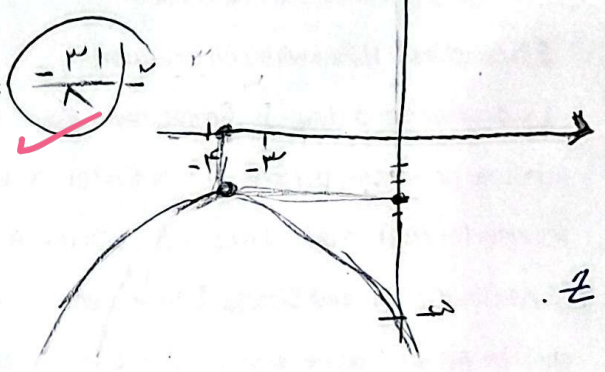


ب)  $y = -kx^2 + kx - 2$

min

ext  $\left| \begin{array}{l} -\frac{b}{2a} = \frac{1}{-2} = \frac{-1}{2} \\ \frac{-\Delta}{4a} = \frac{1 - k^2}{-4k} = \frac{k^2 - 1}{4k} \end{array} \right. \begin{array}{l} \textcircled{-\frac{1}{2}} \\ \textcircled{\frac{k^2 - 1}{4k}} \end{array}$

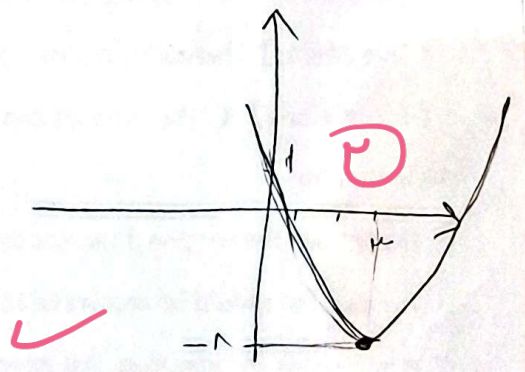
max



الف)  $y = kx^2 - 4x + 1$

min

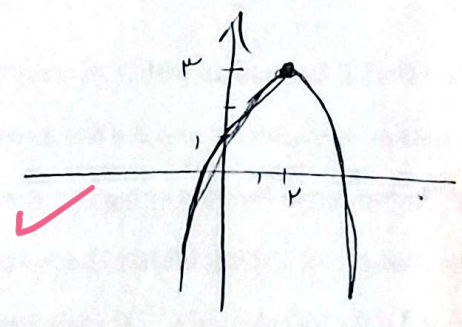
ext  $\left| \begin{array}{l} -\frac{b}{2a} = \frac{2}{k} = \textcircled{2} \\ \frac{-\Delta}{4a} = \frac{16 - 4k}{4k} = \frac{4 - k}{k} \end{array} \right. \begin{array}{l} \textcircled{2} \\ \textcircled{-1} \end{array}$



ب)  $-x^2 + kx + 1$

max

ext  $\left| \begin{array}{l} -\frac{b}{2a} = \frac{1}{2} = \textcircled{1/2} \\ \frac{-\Delta}{4a} = \frac{1 - k}{-4} = \frac{k - 1}{4} \end{array} \right. \begin{array}{l} \textcircled{1/2} \\ \textcircled{3/4} \end{array}$



3. معادله درجه دوم  $kx^2 + kx - 4x - 2 = 9$  را در ریس اینتگریشن در ریس اینتگریشن در ریس اینتگریشن

$\sigma + \beta = \delta = 1 = -\frac{b}{a}$   
 $\sigma \beta = \rho = -2 = \frac{c}{a}$

$1 \Rightarrow -\delta/\beta = 1/\beta = -1/\beta \Rightarrow \beta = -1$   
 قریباً حاصلضرب این دو برابر با  $-\frac{2}{-1} = \frac{2}{1}$

$x(-\frac{1}{4k}) + k(\frac{1}{4k}) + \frac{9}{k} - 2 = 0 \Rightarrow k = -3$   
 $r = -\frac{1}{4}$

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مأسه اول

$$a = \frac{-b}{2a} = \frac{-1}{2} \quad \text{عزق} \left| \begin{array}{l} \frac{1}{2} \\ \frac{1}{2} = 2 \end{array} \right.$$

$$y = \frac{1}{2} = 2$$

$$y = \frac{b}{r} - \frac{b}{r} - 1 = -1 \Rightarrow \frac{1}{r} = 2 = -1 \rightarrow \frac{1}{r} = 3 \rightarrow r = -12$$

مأسه دومه

$$y = 2bx^2 - bx - 1$$

$$A = 2b, B = -b$$

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

$$y = 2b \frac{1}{16} - b \frac{1}{4} - 1 \Rightarrow \frac{b}{8} - \frac{b}{4} - 1$$

$$\Rightarrow -\frac{b}{8} - 1$$

$$\text{عزق} \left| \begin{array}{l} \frac{1}{4} \\ -\frac{b}{8} - 1 \end{array} \right.$$

این نسخه، رأس ماسه اول اسه

$$x = \frac{1}{4} \quad y = -\frac{a}{16} + \frac{a}{4} + 2 = \frac{3a}{16} + 2$$

$$\Rightarrow \frac{3a}{16} + 2 = -\frac{b}{8} - 1 \quad a = -12$$

$$\frac{3(-12)}{16} + 2 = -\frac{b}{8} - 1$$

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

$$-\frac{1}{4} = -\frac{b}{8} - 1$$

$$\frac{3}{4} = -\frac{b}{8} \quad b = -6 \quad b - a = -6 - (-12) = 6$$

$$y = 2ax^2 + bx + c$$

$$a > 0$$

$$\text{عزق} \left| \begin{array}{l} -\frac{6}{2 \cdot (-12)} \rightarrow x < 0 \\ y < 0 \end{array} \right.$$

9  
 در ناحیه سوم  
 چون منحنی یک منحنی دایره ای است  
 رأس بین آنها قرار میگیرد

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ریشه های  $n, m$

**1, 2**

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

$$\Rightarrow x^2 - (m+n)x + mn$$

مساوی :  $m+n = a^2 + b^2 - 1$

$$mn = a + b - 1$$

✓  
پس :  $a=2, b=2$

$$a^2 + b^2 - 1x = 9 + 16 - 1x = 1x$$

$$a + b - 1 = 9$$

$$m+n = 1$$

با امتحان کردن به اعداد 3 و 5 رسیدیم :

← 3 و 2  
← 5 و 4

در ریشه های  $a, b$

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

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

$$\sqrt{a} - \sqrt{b} = 1$$

$$(\sqrt{a} + \sqrt{b})^2 = a + b + 2\sqrt{ab}$$

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

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

$$\sum_{i=1}^m x^i = \frac{x^{m+1} - x}{x - 1}$$

$$\frac{x^{m+1} - x}{x - 1} = -\frac{1 + r \sum_{i=1}^m x^i}{r}$$

$$1, 0 \quad m = 1 + r \sum_{i=1}^m x^i$$

لا يوجد جواب

$$\frac{(m+r)^r - r(r)(m)}{r}$$

$$\sqrt{(m+r)^r} \rightarrow \frac{|m-r|}{r}$$

لا يوجد جواب

$$S = \frac{1}{r} \times \frac{|m-r|}{r} \times |m| = \frac{|m(m-r)|}{r} = \frac{r}{r} \Rightarrow |m(m-r)| = r$$

$$1, r$$

$$m(m-r) = r \Rightarrow \begin{cases} m = -1, m = r \\ m = r, m = 0 \end{cases}$$

$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$a > 0$$

$$x = \frac{-b}{\frac{r}{a}} \rightarrow -\frac{r}{r a}$$

$$y = a \left( \frac{-r}{\frac{r}{a}} \right)^r \left( \frac{r}{\frac{r}{a}} \right) + a \rightarrow \frac{r}{r a} r \quad a < \frac{r}{r a} r = \frac{r}{r a}$$

لا يوجد جواب

$$x = -\frac{r}{\frac{r}{a}} < -\frac{r}{\frac{r}{a}}$$

$$\Delta = r a$$

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

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

$$a = \frac{r}{r a} r = \frac{r}{r a}$$

$$a = 1, \text{ لا يوجد جواب}$$

$$(x-r)(x-s) \rightarrow x^2 - (r+s)x + rs$$

لا يوجد جواب

$$1, 0$$

$$x^r - (r+s)x + rs = 0 \Rightarrow r+s = a+1$$

$$rs = a$$

$$r + n + (n+r) = r + n + r$$

لا يوجد جواب

$$a+1 = r+n+r$$

$$s = n+r$$

$$n = r+n+r$$

$$r, 1, a$$

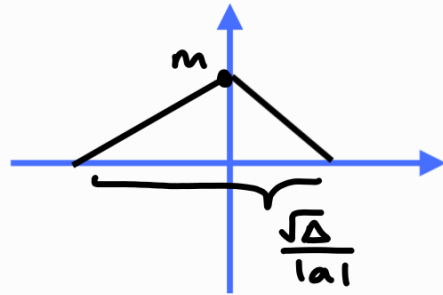
$$\sqrt{\alpha} - \sqrt{\beta} = 1 \xrightarrow{\text{توان ۲}} \alpha + \beta - 2\sqrt{\alpha\beta} = 1 \rightarrow \sqrt{m} - \sqrt{n} = 1 \quad (\sqrt{m} = t)$$

$$\sqrt{t}^2 - 2t - 1 = 0 \rightarrow t = 1 \quad \sqrt{m} = 1 \rightarrow m = 1$$

$$\hookrightarrow t = \frac{-1}{2}$$

$$\sqrt{n}^2 - m = -1 \rightarrow \sqrt{n}^2 - 1 = -1 \rightarrow \frac{c}{a} = \frac{-1}{2}$$

$$S = \frac{1}{r} \times m \times \frac{\sqrt{m^2 + r^2 - 4m}}{2} = \left| \frac{m}{r} \right|$$



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

$$1 \quad m \geq r \rightarrow m^2 - 2m - r^2 = 0 \rightarrow m = r$$

$$\hookrightarrow m = -1$$

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

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

$$\hookrightarrow m = r$$

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

$$m = r \rightarrow y = \sqrt{x} + \sqrt{m} + r \rightarrow \alpha\beta = \frac{-r}{r}$$

$$m = -1 \rightarrow y = \sqrt{x} - 1 + r \rightarrow \alpha\beta = \frac{-1}{r}$$

$$x^2 - (a+1)x + a = 0 \xrightarrow{a+b+c=0} \begin{cases} \alpha + \beta = 1 \\ \alpha\beta = a \end{cases} \rightarrow a = r$$

$$x^2 - 1 \cdot x + b = 0 \xrightarrow{\text{مقایسه ضرایب}} 2x + 2x + r = 1 \rightarrow x = 2 \rightarrow \text{ریشه ها ۲ و ۲ است}$$

$$(4 \times 4) - (3 \times 1) = 16 - 3 = \boxed{13}$$

$$\frac{c}{a} = \frac{\beta}{\gamma\alpha} = \alpha\beta \rightarrow \alpha^2 = \frac{1}{\gamma\delta} \rightarrow \alpha = \pm \frac{1}{\delta}$$

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$$-\frac{b}{a} = \frac{-\gamma}{\gamma\delta\alpha} = \alpha + \beta \rightarrow \alpha = \frac{1}{\delta} \rightarrow \beta = -1$$

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

$$y = -2x^2 + 4x + 1 \rightarrow \begin{cases} x_S = \frac{4}{4} \text{ مثبت} \\ y_S = \frac{-5}{-4} = \frac{-(14+20)}{-4} = \frac{9}{4} \text{ مثبت} \end{cases}$$

\* راس سهمی در ناحیه اول است

$$a^2 + b^2 - 12 = a + b \rightarrow s^2 - 2p - 12 = s$$

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$$a + b - 1 = ab \rightarrow s - 1 = p \rightarrow s^2 - 2s + 2 - 12 - s = 0$$

$$s^2 - 3s - 10 = 0 \rightarrow (s - 5)(s + 2) = 0$$

$$\checkmark s = 5 \quad \downarrow \quad s = -2 \times \quad \downarrow \quad \text{ب, ا اعداد طبیعی هستند!}$$