

۱۴، ۱۵

الف) $ext \left\{ \begin{array}{l} \frac{b}{2a} = \frac{3}{4} \\ 2 - 4x + 1 = 1 \end{array} \right. \quad a < 0 \rightarrow \min$

ب) $ext \left\{ \begin{array}{l} \frac{-b}{2a} = \frac{3}{4} \\ -2 \left(\frac{9}{16} \right) + 3 \left(\frac{3}{4} \right) - 1 = \frac{1}{4} \end{array} \right. \quad a < 0 \rightarrow \max$

الف) $ext \left\{ \begin{array}{l} \frac{b}{2a} = \frac{3}{4} \\ a, 1, 1, 1 = 1 \end{array} \right.$

x	y
3/4	-1/4
1/2	1/2
1/4	-1/4

ب) $ext \left\{ \begin{array}{l} \frac{b}{2a} = \frac{3}{4} \\ -4, 1, 1, 1 = 1 \end{array} \right.$

x	y
3/4	1/4
1/2	1/2
1/4	-1/4

$\div x, \quad 2x^2 + kx - 9 - \frac{1}{2} = 0$

$\Delta = \alpha + \beta = \frac{-b}{a} = \frac{-k}{2} = 1 \rightarrow k = -2$

$\rho = \alpha \beta = \frac{c}{a} = -2 \rightarrow \frac{-9 - \frac{1}{2}}{2} = -2$

$-9 - \frac{1}{2} = -18 \rightarrow \frac{1}{2} = 18 \rightarrow x = 2$

① $\begin{cases} x_1 + x_2 + \dots + x_m = m \\ x_1 x_2 \dots x_m = 1 \end{cases}$

② $\rho = \frac{c}{a} = \frac{1}{m}$

$x_1 + x_2 + \dots + x_m = 1$

$x_1 x_2 \dots x_m = 1$

$m \sqrt[m]{m} = 1$

$t \geq \sqrt[m]{m} \rightarrow m t^m \rightarrow m t^m - 1 = 0$

$(m t + 1)(t - 1) = 0 \rightarrow t = 1 \rightarrow m = 1$ (فرض α)

$(0, m)$

$S = \frac{1}{m} x_1 x_2 \dots x_m$

$\frac{1}{m} = \frac{1}{m} (x_2 \dots x_m) = \frac{1}{m}$

$x_2 \dots x_m = \frac{\sqrt{(m+1)^m - 1} m}{m}$

$m \sqrt{(m+1)^m - 1} m = m$

$m = m$

$y = x^m - m x + 1 \rightarrow x_{crit} = \frac{m}{m}$

$\frac{1}{m} = m \times \frac{\sqrt{(m+1)^m - 1} m}{m} = \frac{m}{m}$

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

$$y = az^2 + \dots \rightarrow y_{\min} = \frac{4ac - b^2}{4a}$$

$$\frac{4ac - b^2}{4a} = \frac{v}{n} \rightarrow \dots \rightarrow \frac{1}{\sqrt{20}}$$

1/10

6

$$\begin{cases} n(n+1) = a \rightarrow a = n^2 + n \\ n(n-1) = a \rightarrow n^2 - n = a \end{cases}$$

$$b - a = \frac{1}{x} - \frac{1}{y} = \frac{y - x}{xy}$$

$$\begin{cases} x \neq 0, y \neq 0 \\ x^2 + y^2 = 0 \rightarrow x = y = 0 \end{cases}$$

$$p = (x+y)(x-y) = x^2 - y^2$$

1/20

7

$$\begin{aligned} \textcircled{1} \quad x_1 &= \frac{-a}{-2a} = \frac{1}{2} \\ y_1 &= -a \left(\frac{1}{2}\right) + a + 1 = a + 1 \end{aligned}$$

$$a + y = 2b \left(\frac{1}{2}\right) - b \left(\frac{1}{2}\right) - 1$$

$$\textcircled{2} \quad x_2 = \frac{-b}{2a} = \frac{1}{2}$$

$$y_2 = 2b \left(\frac{1}{2}\right) - b \left(\frac{1}{2}\right) - 1 = b - 1$$

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

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

$$y = -a \left(\frac{1}{2}\right) + a \left(\frac{1}{2}\right) + 1$$

1/20

8

$$y = \frac{-2 \pm \sqrt{4 + 4a\beta}}{2a} \xrightarrow{\beta > a} y > 0$$

$$x = \frac{-b}{2a} = \frac{-1}{2} \rightarrow x < 0$$

$$\begin{cases} x < 0 \\ y > 0 \end{cases} \rightarrow \dots$$

1

9

$$a = \sqrt{2}, b = \sqrt{2} \rightarrow a^2, b^2 - 11 = 1 + 2 - 11 = -8 \rightarrow ab - 1 = 2$$

$$a - b = \sqrt{2} - \sqrt{2} = 0$$

1

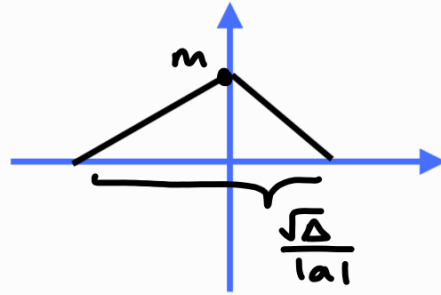
10

$$\alpha + \beta = 1 \rightarrow x^r - 5x + p \rightarrow x^r - x - r \sim (x-r)(x+1) = .$$

۱۳

$$x=r \rightarrow f(r)^r + f_k - x - r = . \rightarrow \boxed{k = -r}$$

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



۱۵

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

1 $m \geq r \rightarrow m^2 - 2m - r = . \rightarrow m = r$
 $\hookrightarrow m = -1$ if $m < r \rightarrow \Delta < .$ غَدَر

2 $m \leq r \rightarrow -m^2 + 2m + r = . \rightarrow m = -1$
 $\hookrightarrow m = r$ if $m > r \rightarrow \Delta < .$ غَدَر

$$m = r \rightarrow y = x^r + r x + r \rightarrow \alpha S = -\frac{r}{r}$$

$$m = -1 \rightarrow y = x^r - x + r \rightarrow \alpha S = -\frac{1}{r}$$

$$x^r - (a+1)x + a = . \xrightarrow{a+b+c=.} \begin{cases} \alpha 1 = 1 \\ \alpha r = a \end{cases} \xrightarrow{\text{موردی}} a = r$$

۱۷

$x^r - 1 \cdot x + b$ $\xrightarrow{\text{موردی}} 2x + 2x + r = 1 \rightarrow x = r \sim$ همیشه ۴، ۴ هسته

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

کثیرین مقدار سوس میں سے سوس نیم دار ← $a > 0$

4

$$xS = \frac{-b}{ra} = \frac{-r}{ra}$$

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

$$\frac{-a + ra^2}{ra} = \frac{v}{\lambda} \rightarrow -vr + vra^2 = v\lambda \sim \lambda a^2 - va - v\lambda = 0$$

$$a = \frac{-r}{\lambda} \times a > 0$$

$$a^2 - va - v\lambda = 0 \sim (a-14)(a+9) = 0$$

$$\downarrow$$
$$a = 2 \checkmark$$

$$y = -an^2 + an + r \rightarrow S\left(\frac{1}{r}, \frac{a}{r} + r\right)$$

1

$$y = rn^2 - bn - 1 \rightarrow S\left(\frac{1}{r}, -\frac{b}{r} - 1\right)$$

$$rb\left(\frac{1}{r}\right) - b\left(\frac{1}{r}\right) - 1 = \frac{a}{r} + r \rightarrow \frac{a}{r} = -r \rightarrow a = -12$$

$$-a\left(\frac{1}{r}\right) + a\left(\frac{1}{r}\right) + r = -\frac{b}{r} - 1 \rightarrow -\frac{r}{r} - r + r = -\frac{b}{r} - 1 \rightarrow b = -4$$

$$b - a = -4 - (-12) = 8$$

$$\frac{c}{a} = \frac{\beta}{ra} = \alpha\beta \rightarrow \alpha^2 = \frac{1}{ra} \rightarrow \alpha = \pm \frac{1}{\sqrt{a}}$$

1

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

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

$$y = -an^2 + rn + 1 \rightarrow \begin{cases} xS = \frac{r}{a} \text{ مثبت} \\ yS = \frac{-a}{ra} = \frac{-(14+20)}{-2} = \frac{9}{a} \text{ مثبت} \end{cases}$$

☆ اس میں از نیہ اول است

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

۱۰

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

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

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

$$\downarrow$$
$$s = -2 \times$$

و، اعداد غیر مثبت!