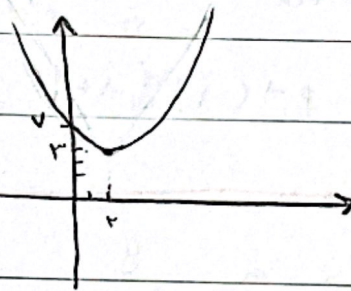


الف) $y = x^2 - 4x + 7$

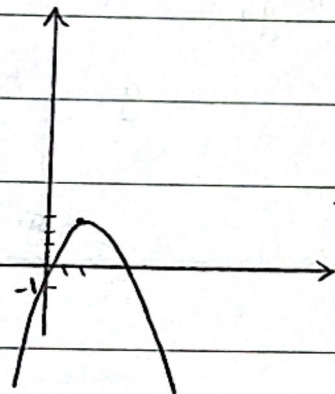
$$\left| \frac{-b}{2a} = \frac{4}{2} = 2 \right|$$



①

ب) $y = -x^2 + 4x - 1$

$$\left| \frac{-b}{2a} = \frac{-4}{-2} = 2 \right|$$



$2x^2 + (m+1)x + \frac{1}{2}m + 2 = 0$

②

$\Delta > 0 \rightarrow (m+1)^2 - 4 \cdot 2 \cdot (\frac{1}{2}m + 2) > 0$

الف) ریشه متمایز

$m^2 + 1 + 2m - 4m - 16 > 0$

$m^2 - 2m - 15 > 0$

$(m-5)(m+3) > 0$

$m=5 \quad m=-3$

$m \rightarrow (-\infty, -3) \cup (5, +\infty)$

$\Delta = 0 \rightarrow m^2 - 2m - 15 = 0$

ب) معادله یک ریشه مضاعف

$(m-5)(m+3) = 0 \rightarrow m = 5 \text{ و } -3$

$\Delta < 0 \rightarrow m^2 - 2m - 15 < 0$

ج) معادله ریشه حقیقی نداشته باشد

$\frac{-2}{2} \pm \frac{\sqrt{4 + 60}}{2} = -1 \pm \sqrt{16} = -1 \pm 4$

$m \rightarrow (-3, 5)$

د) ریشه داشته باشد

$\Delta \geq 0 \rightarrow m^2 - 2m - 15 \geq 0$

$\frac{-2}{2} \pm \frac{\sqrt{4 + 60}}{2} = -1 \pm 4$

$m \rightarrow (-\infty, -3] \cup [5, +\infty)$

Scanned with

$$y = (m-r) a^r - r(m+1) a + 1$$

(P)

$$\text{ii)} \rightarrow \Delta > 0, P > 0, S < 0 \rightarrow (-r, m-r)^r - r(m-r)(1) > 0$$

$$r m^r - r^2 m + 1 > 0$$

$$P > 0 \rightarrow \frac{1}{m-r} > 0 \rightarrow \frac{r}{-r} +$$

$$\Delta < 0 \rightarrow \oplus \text{ gbs}$$

$$(r, +\infty) = I$$

$$S < 0 \rightarrow \frac{r m + r}{m-r} < 0$$

$$\frac{-1}{r} + \frac{r}{-r} +$$

$$I \cap (II) \rightarrow \emptyset$$

$$(II) = (-1, r)$$

←

$$\text{iii)} \Delta > 0, P < 0, S < 0$$

$$(I) \cap (II) \rightarrow (-1, r) \text{ m} \in (-1, r)$$

⊕

$$P < 0 \rightarrow \frac{1}{m-r} < 0 \rightarrow \frac{r}{-r} +$$

$$(-\infty, r), S < 0$$

$$\frac{r m + r}{m-r} < 0$$

$$\frac{-1}{r} + \frac{r}{-r} +$$

$$(II) \rightarrow (-1, r)$$

$$\text{iv)} \Delta > 0 \rightarrow (m+1)^r - r(r) \left(\frac{1}{r} m + r \right) > 0$$

(K)

$$m^r + 1 + r m - r m - 1 > 0 \rightarrow m^r - r m - 1 > 0 \rightarrow (m-r)(m+r) > 0$$

$$\frac{-r}{r} + \frac{r}{-r} +$$

$$m \in (-\infty, -r) \cup (r, +\infty)$$

$$\text{v)} \Delta = 0 \rightarrow (m+1)^r - r(r) \left(\frac{1}{r} m + r \right) = 0 \rightarrow (m-r)(m+r) = 0$$

$$m = r, -r$$

$$2) \Delta < 0$$

$$3) \Delta > 0$$

$$(m-r)(m+r) < 0$$

$$(m-r)(m+r) > 0$$

$$\frac{-r}{r} + \frac{r}{-r} + m \in (-r, r)$$

$$\frac{-r}{r} + \frac{r}{-r} + m \in (-\infty, -r] \cup [r, +\infty)$$

$$\frac{r a^r}{r} - (r \sin a) a + \frac{r}{r} = 0$$

(a)

$$r \sin^r a - r \left(\frac{r}{r} \right) \left(\frac{r}{r} \right) > 0 \rightarrow r \sin^r a > r \rightarrow \sin^r a > 1$$

$$\sin a = 1 \rightarrow \sin a = -1$$

$$\sin a = 1 \rightarrow (r a - r)^r = 0 \rightarrow a = \frac{r}{r}$$

$$\sin a = -1 \rightarrow (r a + r)^r = 0 \rightarrow a = \frac{-r}{r} \text{ gbs}$$

Scb6

$$y = \frac{(ra^r - a - 1)(ra^r - a - \Delta)}{1 - 2r} = \frac{r(a-1)(a+\frac{1}{r})^r(a-\frac{\Delta}{r})(a+1)}{1-2r} \quad (9)$$

$$(I) \rightarrow a+b+c=0 \rightarrow a_1=1 \quad ar = -\frac{1}{r}$$

$$(II) \rightarrow a+c=b \rightarrow a_1=-1 \quad ar = \frac{\Delta}{r}$$

$$-4(a+\frac{1}{r})(a-\frac{\Delta}{r})$$

$$= -4a^2 + 12a + \Delta \rightarrow \max a = \frac{-\Delta}{4a} = \frac{-b^2 + 4ac}{4a} = \frac{-149 + 4(-9)(\Delta)}{4a} \rightarrow \frac{149}{4r}$$

$$ma^r - (m+r)a - r = 0$$

$$r\left(\frac{m+r}{m}\right) = \Delta\left(\frac{-r}{m}\right) + r \rightarrow \frac{rm + r + \Delta}{m} = r \rightarrow \boxed{m=r}$$

$$\alpha^r + \beta^r = sr - rp = \left(\frac{r}{r}\right)^r - r\left(-\frac{1}{r}\right) = \frac{1r}{r}$$

$$\frac{Ka + B^a}{\Delta B^r} =$$

$$ar \Delta a + r = 0$$

$$\alpha B = r \quad a+B=\Delta \rightarrow \alpha = \frac{r}{B}$$

$$\frac{\frac{1}{B} + B^a}{\Delta B^r} = \frac{\frac{1+B^4}{B}}{\Delta B^r} = \frac{1+B^4}{\Delta B^r} = \frac{(B^r + r)(B^r + r - rB^r)}{\Delta B^r}$$

$$B^r - \Delta B + r = 0 \rightarrow B^r + r = \Delta B \quad \left\{ \begin{array}{l} B^r + r - rB^r = \alpha^r + \beta^r - r = 11 - r = 19 \end{array} \right. \quad (19)$$

$$y_r = ra + 10$$

$$y_1 = aa^r + ba + c$$

$$a_1 = r \quad ar = -r$$

$$c = r$$

$$ra + 10 = aa^r + ba + r \rightarrow aa^r + (b-r)a - r = -9 \rightarrow a_1 \times ar = \frac{-9}{a} = -9 \quad \boxed{a=1}$$

$$y_1 = a^r + ra + r \rightarrow a = as \rightarrow ms = \frac{-b}{4a} = \frac{-r}{r} \quad a_1 + ar = \frac{r-b}{a} = r-b = -1 \quad \boxed{b=r}$$

Scanned with

$$y = 2x^2 + (m+1)x + m+4$$

المميز يساوي صفر

(6)

التمييز $\rightarrow y = a \Rightarrow 4a^2 + (m+1)a + m+4 = a$

$4a^2 + ma + m+4$ يساوي صفر $\Delta = 0 \Rightarrow m^2 - 4(2)(m+4) = 0$

$$\rightarrow m^2 - 8m - 32 = 0$$

$$(m-12)(m+8) = 0$$

$$\therefore \boxed{m=12}, \boxed{m=-8}$$