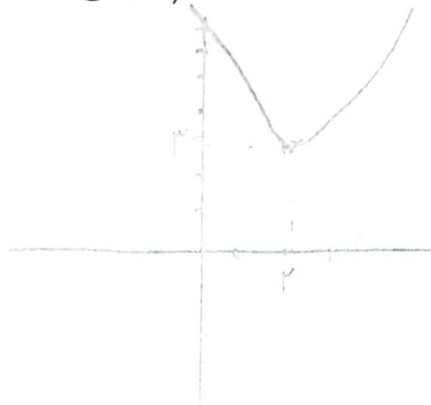


$$y = x^2 - 4x + 7$$

$$\Delta < 0 \leftarrow 16 - 28 = -12$$

$$x = \frac{f}{a} = 2$$

$$y = 3$$



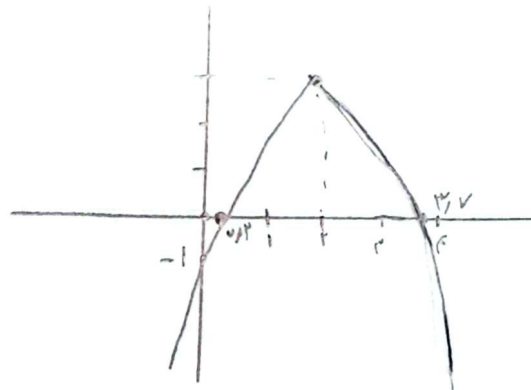
$$y) -x^2 + 4x - 1$$

$$\Delta = 16 - 4 = 12$$

$$x_1 = 2 + \sqrt{3} \approx 3.73, x_2 = 2 - \sqrt{3} \approx 0.27$$

$$x = \frac{-f}{-a} = 2$$

$$y = -4 + 16 - 1 = 11$$



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

$$\oplus \oplus \rightarrow \Delta > 0, P > 0, \delta > 0$$

$$\oplus \ominus \rightarrow \Delta > 0, P < 0, \delta > 0$$

$$\ominus \ominus \rightarrow \Delta > 0, P > 0, \delta < 0$$

$$\oplus \rightarrow \Delta \leq 0$$

$$\ominus \rightarrow \Delta = 0$$

$$P < 0 \rightarrow \frac{m}{r} + 2 < 0 \rightarrow \frac{m}{r} + 2 < 0 \rightarrow m < -2r = B$$

$$\Delta > 0 \rightarrow m^2 + 2m + 1 - 4m - 12 > 0$$

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

$$-r < m < a$$

$$\text{II } P > 0 \rightarrow \frac{m}{r} + 2 > 0 \rightarrow \frac{m}{r} + 2 > 0 \rightarrow m > -2r$$

$$\text{III } \delta > 0 \rightarrow -\frac{m+1}{r} > 0 \rightarrow -m+1 > 0 \rightarrow m < 1$$

$$A = (I \cap \text{II} \cap \text{III}) \rightarrow -r < m < 1$$

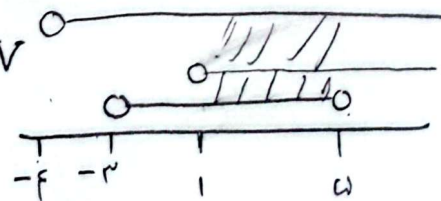
$$\frac{m}{r} + 2 > 0 \rightarrow m > -2r \quad \text{IV}$$

$$\Delta > 0 \rightarrow m^2 - 2m - 12 > 0 \rightarrow -r < m < a \quad \text{V}$$

$$\delta < 0 \rightarrow -\frac{m+1}{r} < 0 \rightarrow m > -1 \quad \text{VI}$$

$$C = (V \cap V \cap \text{IV}) \rightarrow m > 1$$

$$(C \cup B \cup A) = (-\infty, -2r) \cup (-r, 1) \cup (-\infty, -2r)$$



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

$$m^2 - 2m - 10 = 0$$

$$(m-3)(m+7)$$

$$\frac{-m+1}{2} > 0 \quad \& \quad \frac{-m-1}{2} < 0$$

$$\downarrow \quad \downarrow$$

$$m < 1 \quad \& \quad m > -1$$

$$\Delta < 0 \rightarrow m^2 - 2m - 10 < 0$$

$$\begin{array}{c|c|c|c} & -2 & 10 & \\ \hline & - & + & - \end{array}$$

$$\Delta = 0 \quad \& \quad \Delta > 0$$

$$\Delta > 0 \rightarrow m^2 - 2m - 10 > 0 \rightarrow (-7, 10)$$

$$\Delta = 0 \rightarrow \{10, -7\}$$

$$y = (m-2)x^2 - 2(m+1)x + 10$$

$$\Delta > 0 \rightarrow (m^2 + 4m + 4) - 4(m+1)(5) > 0 \quad \Delta > 0 \text{ و } P > 0 \text{ و } S < 0$$

$$(m^2 - 22m + 16) > 0$$

$$\downarrow$$

$$\Delta < 0 \rightarrow \text{مساویه است}$$

$$I \cap P > 0 \quad \frac{10}{m-2} > 0 \rightarrow \boxed{m > 2} \quad \& \quad S < 0 \rightarrow \frac{2m+2}{m-2} < 0$$

$$I \cap II \rightarrow \emptyset$$

$$\boxed{-1 < m < 2}$$

پس برای هیچ مقاری از m این تطابق ریشه متغی دارد

$$S < 0 \text{ و } P < 0 \quad \Delta \text{ مساوی نشی است} \quad \ominus > \oplus / \ominus \oplus$$

$$P < 0 \quad \frac{10}{m-2} < 0 \rightarrow m < 2 \quad S < 0 \quad \frac{2m+2}{m-2} < 0$$

$$-1 < m < 2$$

$$I \cap II \rightarrow \boxed{-1 < m < 2}$$

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

$$\Delta = r \sin^2 \alpha - r \rightarrow r \left(\frac{\sin^2 \alpha}{\cos^2 \alpha} - 1 \right)$$

$$\Delta = -r \cos^2 \alpha$$

برای داشتن ریشه‌ی حقیقی لازم است $\Delta \geq 0$ و چون $-r \cos^2 \alpha < 0$ پس $\Delta < 0$

شرط $\Delta \geq 0$ وقتی ممکن است که $\cos^2 \alpha = 0$ یعنی $\cos \alpha = 0$ $\rightarrow \sin \alpha = \pm 1$

$$x = \frac{-b}{2a} = \frac{r}{r} \sin \alpha = \boxed{\frac{r}{r}}$$

$$y = \frac{(rx^r - rx - 1)(rx^r - rx - a)}{1 - x^r}$$

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

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

$$(1-x)(1+x) \quad rx^r + rx + \frac{a}{r} = y$$

$$(r \sin^2 \alpha) x = \frac{-r}{-r} = 1$$

$$x, y = -1 + r + \frac{a}{r} = \boxed{\frac{11}{r}}$$

$$mx^r - (m+r)x - r = 0$$

$$r\delta = a\rho + v \quad \alpha^r + \beta^r$$

$$\delta = \frac{m+r}{m} = \frac{r}{r} \quad \frac{rm+r}{m} = \frac{vm-10}{m}$$

$$\alpha^r + \beta^r = \delta^r - r\rho \quad \frac{q}{r} + 1 = \boxed{\frac{1r}{r}}$$

$$P = -\frac{r}{m} = -\frac{1}{r} \quad rm^r + 4m = vm^r - 10m \rightarrow rm^r - 14m = 0 \rightarrow r_m(m-r) = 0$$



$$x^r - ax + r$$

$$\alpha + \beta = 10$$

$$\beta = a - \alpha$$

$$\beta^r - a\beta + r = 0$$

$$\beta^r = a\beta - r \rightarrow \beta^a = rva\beta - r10$$

$$\frac{f\alpha + \beta^a}{a\beta^r} \rightarrow \frac{f\alpha}{a\beta^r} + \beta^r$$

$$fva\beta + 19\delta - \beta = r10 - fva\beta + f\beta - r0 = \beta^a + \delta$$

$$a\beta^r = a(a\beta - r) = 10 - rva\beta$$

$$\frac{9a\beta + \beta^r}{a\beta - r} = \frac{(a\beta - r)19}{(a\beta - r)} = \boxed{19}$$

$$y_1 = ax^r + bx + c \quad y_r = rx + 10 \quad \begin{matrix} c-10 = f \\ c = 1f \end{matrix}$$

$$ax^r + bx + c = rx + 10$$

$$ax^r + (b-r)x + c-10 = 0$$

$$\begin{cases} fa + rb = 0 \\ 9a - rb = -10 \end{cases}$$

$$9a - rb + 9 + f = 0$$

$$y_1 = -\frac{10}{11}x^r + \frac{10}{11}x + 1f$$

$$\frac{\frac{10}{11}}{\frac{10}{11}} = \frac{V}{f} = \boxed{\frac{r}{a}}$$

$$r1a = -10 \rightarrow a = -\frac{10}{r1}$$

$$b =$$

$$-\frac{10}{r1} \cdot r1b = -10$$

$$-rb = -10 + \frac{10}{r1} \rightarrow -rb = \frac{-r10 + 10}{r1} \rightarrow \boxed{b = \frac{r10}{r1}}$$

$$y = rx^r + (m+1)x + m + 9$$

$$y = x$$

$$rx^r + (m+1)x + m + 9 = x \rightarrow rx^r + mx + m + 9 = 0 \xrightarrow{\Delta=0} m^r - \Delta m - f1 = 0$$

$$-f \leq 1r \leftarrow (m-1r)(m+f)$$