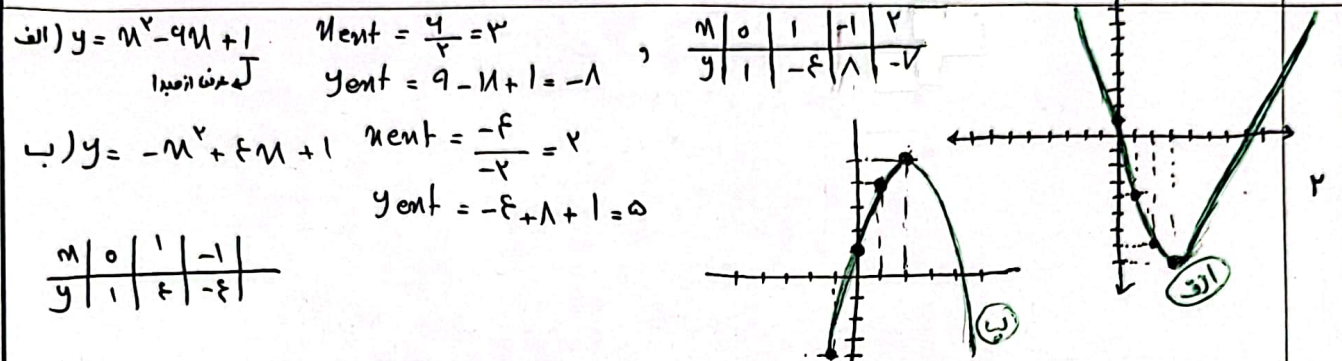


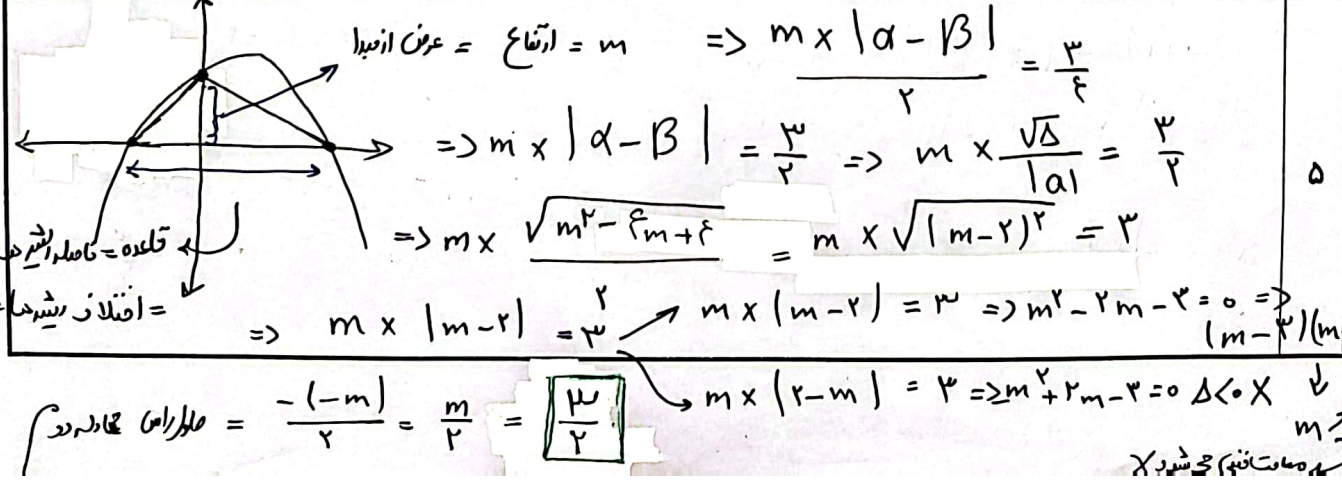
الف) $y = 2x^2 - 4x + 1$ $x_{ent} = \frac{-b}{2a} = \frac{-(-4)}{2 \times 2} = 1$ \Rightarrow $Ent: (1, -1)$
 $y_{ent} = 2 \times 1^2 - 4 \times 1 + 1 = 2 - 4 + 1 = -1$

ب) $y = -2x^2 + 3x - 5$ $x_{ent} = \frac{-b}{2a} = \frac{-3}{2 \times (-2)} = \frac{3}{4}$ \Rightarrow $Ent: (\frac{3}{4}, -\frac{31}{8})$
 $y_{ent} = -2 \times (\frac{3}{4})^2 + 3 \times \frac{3}{4} - 5 = -\frac{9}{8} + \frac{9}{4} - 5 = \frac{-9 + 18 - 40}{8} = \frac{-31}{8}$



$x^2 - 8x + p$ $\frac{\alpha + \beta = 1}{\alpha \beta = -2} \rightarrow x^2 - 1x - 2 = 0 \Rightarrow x^2 - x - 2 = 4x^2 + kx^2 - 4x - 2$
 $\Rightarrow 4x^3 + kx^2 - x^2 - 4x + 1 - 2 + 2 = 0 \Rightarrow 4x^3 + (k-1)x^2 - 1x = 0 \Rightarrow x(4x^2 + (k-1)x - 1) = 0$
 $\Rightarrow 4x^2 + (k-1)x - 1 = 0 \Rightarrow 8 = \frac{1-k}{4} = 1 \Rightarrow 1-k = 4 \Rightarrow k = -3$

$\alpha = \beta + 2, x^2 - (a+1)x + a = 0 \Rightarrow \alpha - \beta = 2 = \frac{\sqrt{\Delta}}{|a|} \Rightarrow \sqrt{a^2 + 1 + 2a - 4a} = \sqrt{a^2 - 2a + 1}$
 $= \sqrt{(a-1)^2} = a-1 = 2 \Rightarrow a = 3$ $\frac{100 - 4b}{1} = 2 \Rightarrow 100 - 4b = 4 \Rightarrow 4b = 96 \Rightarrow b = 24$
 $\frac{b}{1} - \frac{a}{1} = \frac{24}{1} - \frac{3}{1} = 21$



$$y_{enf} = \frac{-\Delta}{\epsilon a} = -\frac{(a - f(a^2))}{\epsilon a} = \frac{V}{\lambda}$$

$$\Rightarrow \frac{fa^2 - a}{\epsilon a} = \frac{V}{\lambda} \Rightarrow 2\lambda a = 3ra^2 - V \Rightarrow 3ra^2 - 2\lambda a - V = 0$$

$$\div r \rightarrow \lambda a^2 - Va - V = 0 \Rightarrow a \rightarrow \frac{V + \sqrt{4rV}}{2\lambda} = \boxed{2} \rightarrow \text{مقدار مثبت}$$

$$\hookrightarrow \frac{V - \sqrt{4rV}}{2\lambda} = \frac{-9}{2} < 0 \quad X$$

$$\sqrt{\alpha} - \sqrt{\beta} = 1 \xrightarrow{(\cdot)^2} \frac{\alpha + \beta - 2\sqrt{\alpha\beta}}{4} = 1 \Rightarrow 3m - 2\sqrt{m} = 1$$

$$\Rightarrow 3m - 2\sqrt{m} - 1 = 0 \xrightarrow{m=t} 3t^2 - 2t - 1 = 0 \Rightarrow t \rightarrow \frac{2 + \sqrt{16}}{6} = 1 = \sqrt{m} \Rightarrow m = 1$$

$$\text{مقدار دوم} \Rightarrow 2m^2 - mm - m = 0 \xrightarrow{m=1} 2m^2 - m - 1 = 0 \hookrightarrow \frac{2 - \sqrt{14}}{4} = -\frac{1}{2} = \sqrt{m}$$

$$\Rightarrow \frac{c}{a} = \frac{-1}{2} \quad \text{مقدار مثبت} \quad \sqrt{m} \text{ مثبت نمی شود}$$

$$\text{رابطه اول} = \left(\frac{-a}{-2a} = \frac{1}{2}, -\frac{a}{f} + \frac{a}{r} + 2 \right) = \left(\frac{1}{2}, \frac{a+1}{f} \right) \rightarrow \text{مقدار مثبت}$$

$$\text{رابطه دوم} = \left(\frac{b}{fb} = \frac{1}{f}, \frac{b}{\lambda} - \frac{b}{f} - 1 \right) = \left(\frac{1}{f}, \frac{-1-b}{\lambda} \right) \rightarrow \text{مقدار مثبت}$$

$$\Rightarrow \frac{a+1}{f} = 2b \times \frac{1}{f} - b \times \frac{1}{r} - 1 \Rightarrow a+1 = 2b - 2b - f \Rightarrow a+1 = -f \Rightarrow a = -2$$

$$\Rightarrow \frac{-1-b}{\lambda} = -\frac{a}{14} + a \frac{1}{f} + 2 \Rightarrow -2b - 14 = -a + fa + 28 \Rightarrow 2b - 14 = 3a + 34$$

$$\Rightarrow 2b = -34 - 14 + 34 = -14 \Rightarrow b = -7 \quad b-a = \frac{-4+1}{2} = \frac{-3}{2}$$

$$\alpha + \beta = \frac{-f}{2a\alpha} \quad \alpha\beta = \frac{\beta}{2a\alpha} \Rightarrow \beta = 2a\alpha \cdot \alpha\beta \Rightarrow 2a\alpha^2 = 1 \Rightarrow \alpha = \frac{1}{\sqrt{2a}}$$

$$\frac{b}{2a} = -\left(\frac{f}{2a\alpha} \right) = -\left(\frac{f}{2a \cdot \frac{1}{\sqrt{2a}}} \right) = -2\alpha$$

$$\alpha < \beta \rightarrow \alpha + \beta = -\frac{f}{2a\alpha} \Rightarrow 2a\alpha^2 = 1 \Rightarrow \alpha \text{ و } \beta \text{ مثبت}$$

$$\alpha < 0 \quad \beta > 0 \quad -2\alpha > 0 \rightarrow \text{مقدار مثبت} \rightarrow \text{مقدار مثبت}$$

$$\left. \begin{aligned} a+b &= a^2 + b^2 - 12 \\ ab &= a+b-1 \end{aligned} \right\} \rightarrow a+b = (a+b)^2 - 2(a+b-1) - 12$$

$$\Rightarrow s = s^2 - 2(s-1) - 12 \Rightarrow s^2 - 4s - 10 = 0 = (s-4)(s+2)$$

$$s = a+b = \boxed{4}$$

$$ab = s - 2 \rightarrow \text{مقدار مثبت}$$