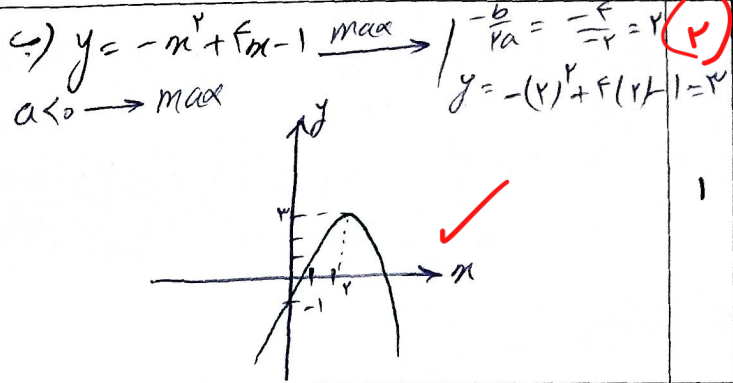
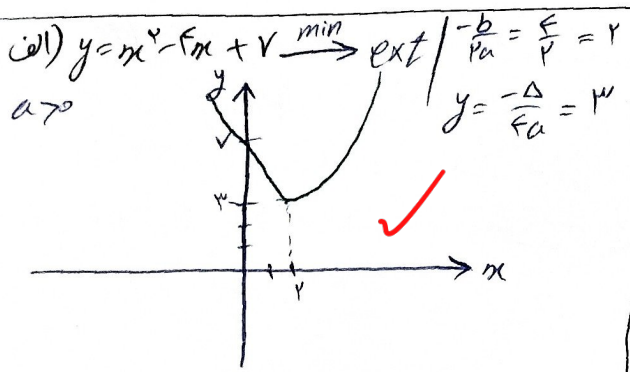




$2x^2 + (m+1)x + \frac{1}{2}m + 2 = 0$

الف) دوری بین دو ریشه  $\rightarrow \Delta = b^2 - 4ac > 0 \rightarrow (m+1)^2 - 4(\frac{1}{2}m+2) = m^2 + 2m + 1 - 2m - 4 = m^2 - 3 > 0$   
 $m^2 - 3 > 0 \rightarrow (m-3)(m+3) > 0 \rightarrow m < -3 \text{ or } m > 3$

ب) یک ریشه متفاوت  $\rightarrow \Delta = b^2 - 4ac = 0 \rightarrow m^2 - 3 = 0 \rightarrow m = 3 \text{ or } m = -3$

ج) فاقد ریشه حقیقی  $\rightarrow \Delta < 0 \rightarrow (m-3)(m+3) < 0 \rightarrow -3 < m < 3$

د) دارای ریشه  $\rightarrow \Delta \geq 0 \rightarrow (m-3)(m+3) \geq 0 \rightarrow m \leq -3 \text{ or } m \geq 3$

$y = (m-2)x^2 - 2(m+1)x + 10 \rightarrow m = 8$

الف) دوری بین دو ریشه  $\rightarrow \Delta > 0 \rightarrow 4m^2 - 32m + 144 > 0$   
 $P > 0 \rightarrow \frac{10}{m-2} > 0 \rightarrow m > 2$

ب) دوری بین دو ریشه مختلف (میانگین)  $\rightarrow S = -\frac{b}{a} < 0 \rightarrow \frac{2m+2}{m-2} < 0 \rightarrow -1 < m < 2$

ج) دوری بین دو ریشه مختلف (میانگین)  $\rightarrow \frac{C}{a} = \frac{10}{m-2} < 0 \rightarrow m < 2$

د) دوری بین دو ریشه مختلف (میانگین)  $\rightarrow \Delta > 0 \rightarrow 4m^2 - 32m + 144 > 0 \rightarrow m < 2$

$y = (m-2)x^2 - 2(m+1)x + 10 \rightarrow m = 8$

الف) دوری بین دو ریشه مختلف (میانگین)  $\rightarrow \Delta > 0 \rightarrow 4m^2 - 32m + 144 > 0$   
 $P < 0 \rightarrow \frac{10}{m-2} < 0 \rightarrow m < 2$   
 $a < 0 \rightarrow m-2 < 0 \rightarrow m < 2$

ب) محور تقاطع  $\rightarrow -\frac{b}{2a} = \frac{2m+2}{2m-4} = -2 \rightarrow m+1 = -2m+2 \rightarrow 3m = 1 \rightarrow m = \frac{1}{3}$

$\frac{2x^2}{3} - (2\alpha x) + \frac{4}{3} = 0 \rightarrow \Delta = b^2 - 4ac = 4\alpha^2 - 4 = 4(\alpha^2 - 1) = -4C\alpha^2 > 0$   
 $4\alpha^2 - 4 > 0 \rightarrow 4\alpha^2 > 4 \rightarrow \alpha^2 > 1 \rightarrow \alpha < -1 \text{ or } \alpha > 1$   
 $S = \frac{2\alpha}{\frac{2}{3}} = 3\alpha > 0$   
 $P = \frac{4}{\frac{2}{3}} = 6 > 0$

دورای ریشه  $\rightarrow \Delta > 0$

فاقد ریشه  $\rightarrow \Delta < 0$

دورای ریشه  $\rightarrow \Delta > 0$

$\frac{2x^2}{3} - 2\alpha x + \frac{4}{3} \rightarrow x^2 - 3\alpha x + 2 \rightarrow (x-1)(x-2) \rightarrow x = 1 \text{ or } x = 2$

دورای ریشه  $\rightarrow \Delta > 0$

فاقد ریشه  $\rightarrow \Delta < 0$

$$f(x) = \frac{(x^m - x^{m-1})(x^m - x + 5)}{1 - x^2} \rightarrow \text{مشتق = ؟}$$

$$f(x) = \frac{(x^m - x^{m-1})(x^m - x + 5)}{(1-x)(1+x)} = -(x^{m+1})(x^m - x + 5) = -x^{2m+1} + x^{m+1} + 5x^{m+1}$$

$$\Rightarrow \text{ext } \left| \frac{x}{y} \right| \rightarrow y_{\max} = \frac{-a}{fa} = \frac{fac - b^2}{fa} = \frac{f(-4)(5) - 16^2}{-2f} = \frac{-10 - 144}{-2f} = \frac{154}{2f} = \frac{77}{f}$$

$$mx^2 - (m+1)x - 2 = 0 \rightarrow \begin{cases} S = \frac{m+1}{m} \\ P = -\frac{2}{m} \end{cases}$$

$$P \cdot S = \Delta P + V \rightarrow x \left( \frac{m+1}{m} \right) = \Delta \left( -\frac{2}{m} \right) + V \rightarrow \frac{x_{m+1}}{m} = \frac{-10 + Vm}{m}$$

$$x^2 + y^2 = 5 \rightarrow S^2 - 4P \Rightarrow x_{m+1} = Vm - 10 \rightarrow x_m = 14 \rightarrow m = 7$$

$$\Rightarrow \begin{cases} S = \frac{m+1}{m} = \frac{8}{7} \\ P = -\frac{2}{m} = -\frac{1}{4} \end{cases} \Rightarrow S^2 - 4P = \frac{64}{49} + 1 = \frac{113}{49}$$

$$x^2 - \Delta x + 2 = 0 \rightarrow \begin{cases} S = \Delta \\ P = 2 \end{cases}$$

$$\frac{fa + \beta^2}{\Delta \beta^2} = \frac{a^2 x + \beta^2}{a^2 x^2} \rightarrow \frac{fa^2 + a^2 \beta^2}{\Delta \beta^2 a^2} = \frac{fa^2 + \beta^2 P^2}{\Delta \beta^2 a^2} = \frac{fa^2 + \beta^2 P^2}{\Delta \beta^2 a^2}$$

$$P^2 = f \rightarrow \frac{fa^2 + \beta^2 P^2}{\Delta \beta^2 a^2} = \frac{f(a^2 + \beta^2 P^2)}{\Delta \beta^2 a^2} = \frac{a^2 + \beta^2 P^2}{\Delta \beta^2 a^2} = \frac{(a + \beta)^2 - 2\beta(a + \beta)}{\Delta \beta^2 a^2} = \frac{S^2 - 2SP}{\Delta}$$

$$\Rightarrow \frac{120 - 2(5)(2)}{\Delta} = \frac{120 - 20}{\Delta} = \frac{100}{\Delta} = 19$$

$$y_1 = ax^2 + bx + c \rightarrow \begin{cases} y = a \\ -x = b \\ f = c \end{cases} \rightarrow \text{مشتق} = \frac{-b}{2a} = S$$

$$y_2 = 2x + 10 \rightarrow f = c \rightarrow a = 2, b = 1, f = 10 \rightarrow 2(2a + b) = 10$$

$$\Rightarrow ax^2 + bx + c = 2x + 10 \rightarrow \frac{b}{2a} = -\frac{c}{a} \rightarrow 2a - b + c = 10 \rightarrow 2(2a - b) = 0 \rightarrow 2a = b$$

$$\begin{cases} 2a + b = 10 \\ 2a = b \end{cases} \rightarrow \Delta a = 10 \rightarrow \begin{cases} a = 1 \\ b = 2 \end{cases}$$

$$\text{مشتق} = \frac{-b}{2a} = -\frac{2}{2} = -1$$

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

$$m = 5 \rightarrow \text{قطع کردن نمودار در نقطه} \rightarrow \Delta = 0$$

مماس بر نمودار باشد

نقطه تقاطع نمودار

$$\begin{cases} y = 2x^2 + (m+1)x + m + 4 \\ y = x \end{cases} \rightarrow 2x^2 + mx + m + 4 = x$$

$$\Delta = b^2 - 4ac = (m)^2 - 4(2)(m+4) = m^2 - 8m - 16 = 0$$

$$\rightarrow m = \frac{8 \pm \sqrt{64 + 64}}{2} = \frac{8 \pm 16}{2}$$

$$\frac{8+16}{2} = \frac{24}{2} = 12$$

$$\frac{8-16}{2} = \frac{-8}{2} = -4$$