

نام و نام خانوادگی: پاسخنامه تشریحی تکلیف شماره 11^ص کلاس (مهم)
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رأس سهمی $\rightarrow a_2 = \frac{b}{c} = 1 \rightarrow b = 2a \rightarrow y_2 = a(-1)^2 + \frac{b}{-b} + c = a - \frac{b}{b} + c = a - 1 + c = c - a = 9 \Rightarrow c = a + 9$

نقطه (2, 1) در آن صدق کند $\rightarrow 1 = 9a + 4b + c \rightarrow 10a + c = 1 \rightarrow 14a + 9 = 1 \rightarrow 14a = -8 \rightarrow a = -\frac{4}{7}$
 $\rightarrow b = -1 \rightarrow c = 1, 8 \Rightarrow y = -\frac{4}{7}x^2 - x + 1, 8$

سبب $\Delta > 0 \rightarrow m^2 - 4(2)(m+4) > 0 \rightarrow m^2 - 8m - 32 > 0 \rightarrow (m+4)(m-12) > 0 \rightarrow m < -4 \text{ or } m > 12$
 $S = \frac{b}{a} = \frac{2}{1} = 2$
 $P = \frac{c}{a} = \frac{1}{1} = 1$
 $\Delta = b^2 - 4ac = 4 - 4(2)(1) = -4 < 0$
 $\frac{m+4}{2} > 0 \rightarrow m+4 > 0 \rightarrow m > -4$
 $\frac{-m}{2} > 0 \rightarrow m < 0$
 $\Rightarrow -4 < m < 0 \Rightarrow m \in (-4, 0)$

$\Delta > 0 \rightarrow S = \frac{1}{p} \rightarrow \frac{b}{a} = \frac{a}{c} \rightarrow a^2 = -bc$
 $9 = -(2m-1)(2-m) \rightarrow 9 = 2m^2 - 4m + 2 \rightarrow 2m^2 - 4m - 7 = 0$
 $m = -1 \rightarrow 2a^2 - 4a + 3 = 0 \rightarrow a^2 - 2a + 1, 5 = 0 \rightarrow (a-1)^2 = -0, 5$
 $m = \frac{7}{2} \rightarrow 2a^2 + 4a + \frac{1}{2} = 0 \rightarrow \Delta = 16 - 4(2)(\frac{1}{2}) = 12 > 0 \checkmark \rightarrow m = \frac{7}{2}$

$a_1 + a_2 = \frac{b}{a} = 1 \quad a_1 a_2 = -c$
 $P = (a_1^2 + \frac{1}{a_1^2})(a_2^2 + \frac{1}{a_2^2}) = (a_1 a_2)^2 + \frac{1}{a_1 a_2} + a_1^2 + a_2^2 = -9 - \frac{1}{9} + 1 + 1 = -8, 11 = P'$
 $S' = \frac{a_1^2 + a_2^2}{a_1^2 a_2^2} + \frac{1}{a_1^2} + \frac{1}{a_2^2} = 1 - 3(-9)(1) + \frac{1}{9} = 12, 11 = S'$
 $\Rightarrow y = a^2 - 8, 11x + 12, 11$

$\sqrt[3]{a_1} = t \rightarrow (t^3 + \frac{1}{t^3} + 1)(t^3 - 1) = 2t \rightarrow t^6 + t^3 + 1 - \frac{t^6 + t^3 + 1}{t^3} = 2t$
 $\times t^3 \rightarrow t^9 + t^6 + t^3 - t^3 - 1 = 2t^4$
 $t^9 - 2t^4 - 1 = 0$
 $t^3 = \sqrt[3]{a_1} = a$
 $a^3 - 2a - 1 = 0 \rightarrow \Delta = 4 - 4(1)(-1) = 8 \Rightarrow \sqrt{\Delta} = 2\sqrt{2}$
 $a = \frac{2 \pm 2\sqrt{2}}{3} = 1 \pm \sqrt{2}$
 $S = 2 \leftarrow -2 = -S$

$$t, \sqrt{t} \rightarrow \text{در } S_1 \rightarrow \begin{cases} \sqrt{t}^2 - at + c \rightarrow t^2 - at + c = 0 \\ \sqrt{t}^2 - at + c = 0 \end{cases}$$

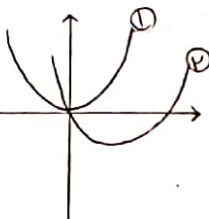
$$11t^2 - 1 = 0$$

$$t^2 = \frac{1}{11} = \frac{c}{a} \rightarrow t = \pm \frac{\sqrt{c}}{\sqrt{a}} \rightarrow \sqrt{t} = \pm \frac{1}{\sqrt{11}}$$

$$\textcircled{1} t = \frac{\sqrt{c}}{\sqrt{a}}, \sqrt{t} = \frac{1}{\sqrt{a}} \rightarrow \sqrt{t}^2 - a(\sqrt{t}) + c = 0 \rightarrow 1 - (-1) = 19$$

$$\textcircled{2} t = -\frac{\sqrt{c}}{\sqrt{a}}, \sqrt{t} = -\frac{1}{\sqrt{a}} \rightarrow \sqrt{t}^2 - a(\sqrt{t}) + c = 0 \rightarrow 19 + 19a = 0 \rightarrow a = -1$$

$C=0 \rightarrow$ مماس و $a > 0$

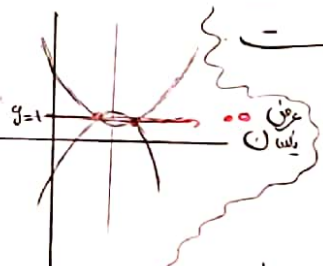


$$\rightarrow \text{مماس} \rightarrow \textcircled{1} a_3 = y_3 = 0 = \frac{-b}{2a} \rightarrow 0 = \frac{-2a-3}{2a} \rightarrow a = \frac{3}{2} \rightarrow a > 0$$

$$\textcircled{2} \rightarrow a > 0 \\ \Delta > 0 \\ S > 0$$

$$a_3 > 0 \rightarrow \frac{-2a-3}{2a} > 0 \rightarrow \frac{-\frac{3}{2}-3}{-1+\frac{3}{2}} \rightarrow \frac{-\frac{9}{2}}{-\frac{1}{2}} \rightarrow \frac{9}{1} > 0 \rightarrow a > 0$$

همچین مقدار a (مماس)



تقاطع دو خط را می‌توانیم از آن به دست آوریم $m = m_3$ و $m = m_2$ است

$$m_3, m_2 \rightarrow \frac{-a}{2} = \frac{2}{-2} = -1 \rightarrow a = 2 \rightarrow \text{تقاطع}$$

$$\textcircled{1} \rightarrow 1 = m^2 + 2m - 2 \rightarrow m^2 + 2m - 3 = 0 \rightarrow (m+3)(m-1) = 0$$

$$m = -3, 1 \rightarrow \textcircled{2} \rightarrow 1 = -m^2 - 2m + b \rightarrow b = 1 + m^2 + 2m$$

$$b = 4 \leftarrow 1 + 2 + 1 - b = 0 \leftarrow 0 = \text{جمع ضرایب}$$

$$\alpha, \beta \rightarrow \text{ریشه ها}, \alpha + \frac{1}{\alpha}, \beta + \frac{1}{\beta} \rightarrow \text{ریشه ها} \rightarrow S_1 + 1 = S_2 \rightarrow \frac{-a}{2a} + 1 = \frac{-1}{2} + 1 = \frac{1}{2} = S_2$$

$$\textcircled{1} \text{ معادله } 2am + am - 4 = 0$$

$$\textcircled{2} \text{ معادله } 2am^2 - am + b = 0$$

$$P_0 = \alpha\beta \quad P_0 = \left(\alpha + \frac{1}{\alpha}\right)\left(\beta + \frac{1}{\beta}\right) \Rightarrow \frac{a}{2} = \frac{1}{2}$$

$$P_1 = \frac{-c}{2} = -3 \quad \frac{-c}{2} = \frac{-b}{2} \Rightarrow b = -5$$

$$\left[\frac{ab}{c}\right] = \left[\frac{(-5)(1)}{4}\right] = \left[-\frac{5}{4}\right] = -\frac{5}{4}$$

$$\frac{a}{2} + 2m - 3m = \frac{a}{2} + 4m + m$$

$$0 = 4m + 5m \rightarrow m = -m$$

$$\begin{cases} m^2 - 2m - 3m = m(m-5) = 0 \rightarrow m=0 \text{ یا } m=5 \\ m^2 - 4m + m = m(m-3) = 0 \rightarrow m=0 \text{ یا } m=3 \end{cases}$$

$$\Rightarrow a = -5 \\ m = 5$$

$$\begin{cases} m^2 + 4m + 5 = 0 = (m+1)(m+5) \rightarrow m = -1 \text{ یا } m = -5 \\ a^2 + 2a - 15 = 0 = (a-3)(a+5) \rightarrow a = 3 \text{ یا } a = -5 \end{cases}$$

$$-1-3 = -4 \quad 3-(-1) = 4 \rightarrow 4 \text{ یا } -4 \rightarrow 4 \text{ یا } -4$$