۶)

$y_s = \frac{-\Delta}{4a} = ?$ $\frac{-(3x+1)(-x+1)(2x-5)(x+1)}{(1-x)(1+x)} = -6x^2+13x+5$

۱,۷۵

$y_s = \frac{-(13^2-4(-6)(+5))}{-24} = \frac{289}{24}$

۷)

$3(\alpha+\beta) = 5\alpha\beta+7 \to 3\left(\frac{m+2}{m}\right) = \frac{-10}{m}+7 \to \frac{3m+6}{m} = \frac{-10+7m}{m} \to 16 = 4m \to 4 = m$

$S = \alpha+\beta = \frac{m+2}{m} \to \alpha+\beta = \frac{6}{4} = \frac{3}{2}$

$P = \alpha\beta = \frac{-2}{m} \to \alpha\beta = \frac{-2}{4} = -\frac{1}{2} \to S^2-2P = \alpha^2+\beta^2 = \frac{9}{4}+1 = \frac{13}{4}$

۲

۸)

$\beta^2 = 5\beta-2$

$\beta^3 = \beta\times\beta^2 = \beta(5\beta-2) = 5\beta^2-2\beta = 5(5\beta-2)-2\beta = 25\beta-10-2\beta = 23\beta-10$

$\beta^4 = \beta.\beta^3 = \beta(23\beta-10) = 23\beta^2-10\beta = 23(5\beta-2)-10\beta = 105\beta-46$

$\beta^5 = \beta\times\beta^4 = \beta(105\beta-46) = 105\beta^2-46\beta = 105(5\beta-2)-46\beta = 479\beta-210$

$\frac{4\alpha+\beta^5}{5\beta^2} = \frac{4(5-\beta)+479\beta-210}{5\beta^2} = \frac{475\beta-190}{5\beta^2} = \frac{95\beta-38}{\beta^2} = \frac{95\beta-38}{5\beta-2} = 19$

۲

۹)

$y|^{-3}_{4} \to 4 = 9a-3b+4 \to 3a-b=0$ $y_2 = 3x+10$: $x=2 \to y=16$, $x=-3 \to y=4$

$y = |^{2}_{16} \to 16 = 4a+2b+4 \to 4a+4b=10$

$\begin{cases} 4a+2b=10 \\ 9a-3b=0 \end{cases} \to a=1,\ b=3$ $x = -\frac{3}{2}$

۰,۵

$\begin{cases} 3a-b=0 \\ 4a+4b=10 \end{cases} \to \begin{cases} 12a-4b=0 \\ 4a+4b=10 \end{cases}$

$16a=10 \to a=\frac{10}{16} \to b=\frac{15}{8} \to \frac{10}{16}x^2-\frac{15}{8}x+4=0$

$x = \frac{-b}{2a} = \frac{3}{2}$

۱۰)

$y=x \to 2x^2+(m+1)x+m+2 = x \to 2x^2+mx+m+2=0$

$\Delta=0 \to m^2-8(m+2)=0 \to m^2-8m-16=0 \to (m+12)(m+4)=0 \to m=-4, 12$

$a>0$

$x = \frac{-b}{2a} > 0 \to b<0 \to m+1<0 \to m<-1$

$m=-4$ ق ق، $m=12$ غ ق ق

۲

۱۸٫۲۵

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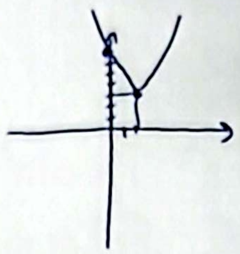
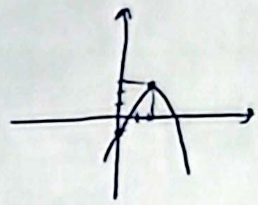
۱)

الف) $-\frac{b}{2a} = x_s = 2$ ، 3



ب) $-\frac{b}{2a} = x_s = 2$ ، 3



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۲)

الف) $\Delta \geq 0 \rightarrow (m+1)^2 - 8(\frac{1}{2}m+2) \geq 0 \rightarrow m^2 - 2m - 15 > 0 \rightarrow (m-5)(m+3) > 0$ ، $\begin{array}{ccc} -3 & & 5 \\ + & - & + \end{array}$ ، $m < -3 \cup m > 5$

ب) $\Delta = 0 \rightarrow m^2 - 2m - 15 = 0 \rightarrow (m-5)(m+3) = 0 \Rightarrow m = \{-3, 5\}$

ج) $\Delta < 0 \rightarrow (m+1)^2 - 8(\frac{1}{2}m+2) < 0 \rightarrow m^2 - 2m - 15 < 0 \rightarrow \begin{array}{ccc} -3 & & 5 \\ + & - & + \end{array} \rightarrow -3 < m < 5$

د) $\Delta \geq 0 \rightarrow (m+1)^2 - 8(\frac{1}{2}m+2) \geq 0 \rightarrow m^2 - 2m - 15 \geq 0 \rightarrow \begin{array}{ccc} -3 & & 5 \\ + & - & + \end{array}$ ، $m \leq -3 \cup m \geq 5$

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۳)

الف) $\begin{cases} \Delta > 0 \rightarrow 4(m+1)^2 - 4(m-2) > 0 \rightarrow 4m^2 - 24m - 16 > 0 \\ P > 0 \rightarrow \frac{10}{m-2} > 0 \rightarrow \begin{array}{c} 2 \\ - \;\; + \end{array} \rightarrow (2, +\infty) = m \\ S < 0 \rightarrow \frac{2(m+1)}{m-2} < 0 \rightarrow \begin{array}{cc} -1 & 2 \\ + \;\; - & + \end{array} \rightarrow (-1, 2) = m \end{cases}$ ، $m \in \mathbb{R}$

$\cap \rightarrow \emptyset$ به ازای هیچ m ای

ب) $\begin{cases} \Delta > 0 \rightarrow m \in \mathbb{R} \\ P < 0 \rightarrow \begin{array}{c} 2 \\ - \;\; + \end{array} \\ S > 0 \rightarrow \frac{2m+2}{m-2} \rightarrow \begin{array}{cc} -1 & 2 \\ + \;\; - & + \end{array} \end{cases}$ $\cap$ $m = (1, 2)$

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۴)

الف) $\Delta > 0 \rightarrow 4(m+1)^2 - 40(m-2) > 0 \rightarrow m \in \mathbb{R}$

$P < 0 \rightarrow \frac{10}{m-2} < 0 \rightarrow \begin{array}{c} 2 \\ - \;\; + \end{array}$ $m < 2$

$\cap$ $m < 2$

ب) $x_s = -2 \rightarrow \frac{-b}{2a} = -2 \rightarrow \frac{2(m+1)}{2(m-2)} = -2$

$\rightarrow m = 1$

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۵)

$\Delta \geq 0 \rightarrow (2\sin\alpha)^2 - 4(\frac{2}{3}(\frac{3}{2})) \geq 0 \rightarrow 4\sin^2\alpha \geq 4 \rightarrow \sin^2\alpha \geq 1 \rightarrow \sin^2\alpha = 1$

$\sin\alpha = 1$ ← خودمون گذاشتیم

$\rightarrow \frac{2}{3}x^2 - 2x + \frac{3}{2} = 0 \rightarrow x = \frac{2 \pm \sqrt{4-4}}{\frac{4}{3}} = \frac{3}{2}$

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