نام و نام خانوادگی ...[illegible]...... پاسخنامه تشریحی تکلیف شماره .... کلاس ....

۱	$\frac{-1}{2(a-1)}=2 \quad -\frac{1}{a-1}=4 \Rightarrow -1=4a-4 \Rightarrow 4a=3 \Rightarrow a=\frac{3}{4}$ $1^2-4(-\frac{1}{4})(3)=4 \quad \frac{-1\pm 2}{-\frac{1}{2}}$ $\begin{cases} 6 \checkmark & \text{طول مثبت} \\ -2 \times & \text{طول منفی} \end{cases}$
۲	$\begin{array}{c\|ccccc} x & & x_1 & & x_2 & \\ \hline f(x) & - & 0 & + & 0 & - \end{array} \Rightarrow m<0$ (1) $\quad 25-4m^2>0$ $\Delta>0 \quad \Delta=-4(25)(-4)=400 \quad \frac{\pm\sqrt{400}}{-8}$ $\begin{cases} -\frac{5}{2} \\ \frac{5}{2} \end{cases}$ $\begin{array}{ccccc} & -\frac{5}{2} & & \frac{5}{2} & \\ - & 0 & + & 0 & - \end{array} \Rightarrow (-\frac{5}{2},\frac{5}{2})$ (2) $\quad (1)\cap(2)=(-\frac{5}{2},0)$
۳	$(x-(\frac{3-\sqrt{5}}{3}))(x-(\frac{3+\sqrt{5}}{3}))=(x-1+\frac{\sqrt{5}}{3})(x-1-\frac{\sqrt{5}}{3})$ $(x-1)^2-(\frac{\sqrt{5}}{3})^2 \Rightarrow x^2+1-2x-\frac{5}{9}=x^2-2x+\frac{4}{9} \xrightarrow[\times 9]{\text{~~ضریب صحیح~~}} 9x^2-18x+4$
۴	$3\alpha^2+\beta^2=12 \Rightarrow 2\alpha^2+\alpha^2+\beta^2=12 \Rightarrow 2\alpha^2+S^2-2P=12 \quad (1),(2) \Rightarrow m=4(1)=4$ $8\alpha-m-2+16-m-2=12 \Rightarrow 8\alpha-2m+12=12 \Rightarrow 8\alpha=2m \Rightarrow 4\alpha=m$ (1) $\alpha+\beta=4 \Rightarrow \beta=4-\alpha \quad 3\alpha^2+(4-\alpha)^2=12 \quad 3\alpha^2+16+\alpha^2-8\alpha=12$ $4\alpha^2-8\alpha+16-12=0 \Rightarrow \alpha^2-2\alpha+1=0 \quad 4-4(1)(1)=0 \quad -\frac{b}{2a}=\frac{2}{2}=1=\alpha$ (2)
۵	$y=a(x-h)^2+k \Rightarrow y=a(x-2)^2+9 \quad c=5 \Rightarrow f(0,5)$ $5=a(0-2)^2+9 \Rightarrow -4=4a \Rightarrow a=-1 \quad -1(x-2)^2+9=-x^2-4+4x+9$ $-x^2+4x+5=y \quad \begin{array}{ccccc} & -1 & & 5 & \\ - & 0 & + & 0 & - \end{array} \Rightarrow (-1,5)$

۶

$\alpha+\beta = -\frac{-7}{\alpha} \Rightarrow \alpha+\beta = \frac{7}{\alpha} \Rightarrow \alpha^2+\beta\alpha = 7$ (1)

$\alpha\beta = \frac{9\beta}{\alpha} \rightarrow \alpha = \frac{9}{\alpha} \rightarrow \alpha^2 = 9$ (2) $\begin{cases}\alpha = 3\\ \alpha = -3\end{cases}$

(1),(2) $\rightarrow 9+\beta\alpha = 7 \rightarrow \beta\alpha = -2$ / $\alpha = 3 \rightarrow 3\beta = -2 \rightarrow \beta = -\frac{2}{3}$ ✗ B منفی است

$\alpha = -3 \rightarrow -3\beta = -2 \rightarrow \beta = \frac{-2}{-3} = \frac{2}{3}$ ✓ B مثبت است

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$S = -m$ (1) $P = -2m$ (2) $\alpha^2 - m\beta = 8 \rightarrow \alpha^2 + [(\alpha+\beta)\beta] = 8$

$\alpha^2 + \beta\alpha + \beta^2 = 8 \rightarrow S^2 - 2P + P = 8 \rightarrow S^2 - P = 8$ (3)

(1)(2)(3) $\rightarrow m^2 + 2m = 8 \rightarrow m^2 + 2m - 8 = 0 \begin{cases} -4 \rightarrow \Delta = (-4)^2 - 4(1)(8) = -16 ✗ \\ 2 \rightarrow \Delta = 2^2 - 4(1)(-4) = 20 ✓ \end{cases}$

$S = -m \xrightarrow{m=2} S = -2$

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طول رأس‌ها $\Delta > 0$

$\frac{-4}{2m} > 0 \rightarrow \frac{-2}{m} > 0$ $\quad \frac{4}{m} - \frac{8}{m} + \frac{m}{2} + 7 = 8$ $\quad -\frac{4}{m} + \frac{m}{2} = 1$

$-8 + m^2 = 2m \rightarrow m^2 - 2m - 8 = 0$ $\quad 4 - 4(1)(-8) = 4 + 32 = 36$

$\frac{2 \pm \sqrt{36}}{2} \begin{cases} 4 ✗ \\ -2 ✓ \end{cases}$ جواب صحیح

$16 - 4(-3)(\frac{11}{3}) = 16+66 = 82$ $\quad x = \frac{-4 \pm \sqrt{82}}{-6}$

$k = \frac{-4-\sqrt{82}}{-6} = \frac{2}{3} + \frac{\sqrt{82}}{6}$

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$a(x-h)^2 + k \rightarrow a(x-2)^2 + 6 = ax^2 - 4ax + 4a + 6 = 4$

$4a + 6 = 4$ $\quad 4a = -2$ $\quad a = -\frac{1}{2} \rightarrow -\frac{1}{2}x^2 + 2x + 4 = f(x)$

$\frac{1}{\alpha} + \frac{1}{\beta} = \frac{\alpha+\beta}{\alpha\beta} = \frac{S}{P}$ $\quad S = \frac{-2}{-\frac{1}{2}} = 4$ $\quad P = \frac{4}{-\frac{1}{2}} = -8$ $\quad \frac{4}{-8} = -\frac{1}{2}$

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$4 - 8a - 8 + 3a^2 + 6a + 3 = 0 \rightarrow 3a^2 - 2a - 1 = 0$ $\quad 4 - 4(3)(-1) = 16$

$\frac{-b \pm \sqrt{\Delta}}{2a} = \frac{2 \pm \sqrt{16}}{6} \begin{cases} 1 \\ -\frac{1}{3} \end{cases}$ $\quad 1 \rightarrow 8^2 - 4(1)(12) = 16$ ✓

$-\frac{1}{3} \rightarrow (\frac{8}{3})^2 - 4(1)(\frac{4}{3}) = \frac{64}{9} - \frac{16}{3} = \frac{64-48}{9} = \frac{16}{9}$ ✓

$\alpha + \beta = 4a + 4 \rightarrow 2 + \beta = 4a + 4 \rightarrow \beta = 4a + 2$ $\quad 1 \rightarrow \beta = 4(1) + 2 = 6$

$-\frac{1}{3} \rightarrow \beta = 4(-\frac{1}{3}) + 2 = -\frac{4}{3} + 2 = \frac{2}{3}$

سوال ۸

$-\frac{16-4(m)(\frac{m}{2}+7)}{2m}$ $\qquad \frac{-\Delta}{2a} =$ عرض رأس

$-\frac{16-2m^2-28m}{4m} = -\frac{8-m^2-14m}{2m} = 8$

$+m^2+14m-8=16m \to m^2-2m-8=0$

$\Delta = b^2-4ac \to 4-4(1)(-8)=36 \qquad m=\frac{-b\pm\sqrt{\Delta}}{2a}$

$\frac{2\pm 6}{2} \begin{cases} 4 \ ✗ \\ -2 \ ✓ \end{cases}$ سهمی رو به پایین $\quad -2x^2+4x+\underbrace{7-1}_{6}$