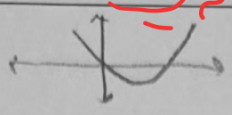
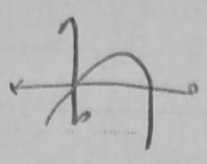
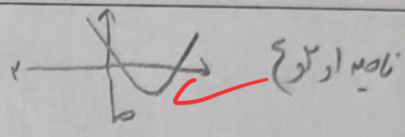
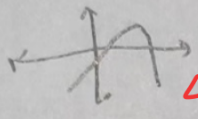
نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ..... کلاس .....

۱۹ آذر

۱ الف) $\left|\begin{matrix}-\frac{1}{2} \\ -\frac{1}{2}\end{matrix}\right.$  ۳ تا می‌گذره

ب) $\left|\begin{matrix}2 \\ 4\end{matrix}\right.$  از ۲ تا می‌گذره ✓ ۲

۲ الف) $=\left|\begin{matrix}-\frac{5}{4} \\ -\frac{9}{8}\end{matrix}\right.$ → ریشه $= \frac{9 \mp \sqrt{33}}{4} \lesssim \begin{matrix}2 \\ \frac{1}{4}\end{matrix}$  ناصفر از ۲ تا ۴

ب) $\left|\begin{matrix}2 \\ 3\end{matrix}\right.$  از ۳ تا ۴ ✓ ۲

۳ الف) $\frac{9+13}{a-13} \to \Delta = 1$ → $\frac{1}{\sqrt{13}} \times \frac{\sqrt{13}}{13} = \frac{\sqrt{13}}{13}$

$\frac{\sqrt{\Delta}}{|a|} = \frac{\sqrt{1-4ac(1)}}{1} = \sqrt{13}$

ب) $\alpha^2 - \beta^2 \to S^2 - 2P \to 1 - 2(-3) = 7$ ✓

ج) $\alpha^3 + \beta^3 \to S^3 - 3PS = 1 - 3(-3)(1) = 10$ ✓

د) $\alpha^3 - \beta^3 = (\alpha-\beta)^3 + 3\alpha\beta(\alpha-\beta) = (\sqrt{13})^3 + 3(-3)(\sqrt{13}) = -9\sqrt{13}$

$(\alpha-\beta)(\alpha^2+\beta^2+\alpha\beta) = \sqrt{13}(7-3) = 4\sqrt{13}$

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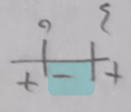
۴ $(x-2)(x^2-ax+a)$

$x-2=0 \to x=2$ (b)

$\Delta < 0 \to a^2 - 4a < 0 \to a(a-4) < 0$

$0 < a < 4$



$x=2 \to 4-2a+a=0 \to -a+4=0 \to a=4$ ✓ ۲

اشتراک جواب ها ۰ تا ۴

۵ $3x^2-12x+9=0$

$2\alpha^2+\beta^2-4\alpha=7$

$\alpha=1$

$\frac{c}{a}=3$

$\beta^2+\alpha^2+\alpha^2-4\alpha=7$

$\frac{7}{2}$

$4\alpha+\frac{3}{3}$

$\to \alpha^2+\beta^2 = 14+\frac{2a}{3} \to S^2 - 11P$

$\to 14+\frac{2a}{3}+4\alpha-4a=7 \to \frac{2a}{3}=9$

$a=-9$

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$\frac{a}{a\text{man}} = \frac{-9}{3} = -3$

صحت سوال را با دقت بخوان!

۶ $A=(2a+3, a-2)$, $B(7-2a, a-2)$ $\quad x_S=\frac{2a+3+7-2a}{2}=5$

$b=5 \longrightarrow \frac{b}{5}-2=3 \longrightarrow 1\frac{5}{3} \longrightarrow 3(x-5)^2+3$

$\longrightarrow 1=19a+3 \longrightarrow a=\frac{-1}{8}$

$\rightarrow y=0 \rightarrow \frac{-1}{8}(x-5)^2+3 \rightarrow -\frac{25}{8}+3=\frac{-1}{8}$ ✓

۷ $S=\frac{a}{a}=1 \Rightarrow P=-\frac{b}{a}$ $\quad \alpha+\beta=1 \longrightarrow \alpha=1-\beta$

$4\beta^2+20\alpha^2-24\beta=17 \longrightarrow 16\alpha=1-\beta \rightarrow 4\beta^2+20(1-\beta)^2-24\beta=17$

$24\beta^2-24\beta+20=17 \longrightarrow 8\beta^2-8\beta+1=0$

$\longrightarrow \alpha=1-\beta$ $\quad \beta=\frac{2+\sqrt{2}}{4}$ (جایگذاری) $\rightarrow \alpha=\frac{2-\sqrt{2}}{4}$

$\beta=\frac{2-\sqrt{2}}{4}$ (جایگذاری) $\rightarrow \alpha=\frac{2+\sqrt{2}}{4}$

$\longrightarrow |\alpha-\beta|=\frac{\sqrt{2}}{2}$ ✓

۸ $x_S=\frac{1-3}{2}=-1 \rightarrow (-1,-\frac{1}{2}) \rightarrow y=a(x+1)^2-\frac{1}{2} \rightarrow a(1)^2-\frac{1}{2}=\frac{3}{2}$

$\rightarrow 4a-\frac{1}{2}=\frac{3}{2} \longrightarrow a=\frac{1}{2}$ $\quad \rightarrow \beta=a(3)^2-\frac{1}{2} \rightarrow \beta=\frac{1}{2}(9)-\frac{1}{2} \Rightarrow \beta=\frac{9}{2}-\frac{1}{2}=4$

$\beta=4$ ✓

۹ $2\alpha^2+2\beta^2=12\sqrt{2}+18 \rightarrow \alpha+\beta \rightarrow \alpha^2+\beta^2=(\alpha+\beta)^2-2\alpha\beta \rightarrow 36-2\alpha$

$9\alpha^2+2\beta^2=2(\alpha^2+\beta^2)+\alpha^2$ (جایگذاری) $2(36-2\alpha)+\alpha^2 \rightarrow \alpha^2-4\alpha+72$

$\rightarrow \alpha=-3-2\sqrt{2}$ $\quad \alpha^2=(-3-2\sqrt{2})^2=17+12\sqrt{2}$

$\beta^2=(-3+2\sqrt{2})^2=17-12\sqrt{2}$ (جایگذاری) $\quad \alpha\beta=(-3-2\sqrt{2})(-3+2\sqrt{2})$

$\rightarrow 9-1=1=a$ ✓

۱۰ $4x^2-(m+12)x+1=0 \rightarrow \sqrt{\frac{1}{\alpha}}+\sqrt{\frac{1}{\beta}}=5 \rightarrow \frac{\alpha+\beta}{\alpha\beta}+2\sqrt{\frac{1}{\alpha\beta}}=25$

$\longrightarrow m+12+8=100 \longrightarrow m=80$ $\quad \rightarrow mx^2+3x+2=0 \rightarrow (80)x^2+3x+2=0$

$\rightarrow P=\frac{c}{a}=\frac{2}{80}=\frac{1}{40}$ ✓

V

$ax^2 - ax - b = 0 \longrightarrow S = \frac{a}{a} = 1 \rightsquigarrow \alpha + \beta = 1 \rightsquigarrow \alpha = 1 - \beta$

$40\beta^2 + 20(1-\beta)^2 - 20\beta = 17 \rightsquigarrow 90\beta^2 - 90\beta + 30 = 0 \rightsquigarrow \beta = \frac{20 \pm \sqrt{400 - 180}}{40}$

$\alpha - \beta = 1 - 2\beta = 1 - 2\left(\frac{10 \pm \sqrt{10}}{20}\right) = 1 - \left(1 \pm \frac{2}{\sqrt{5}}\right) = \pm\frac{2}{\sqrt{5}}$

$\boxed{\alpha - \beta = \frac{2}{\sqrt{5}}}$ ← اختلاف همیشه مثبت است پس