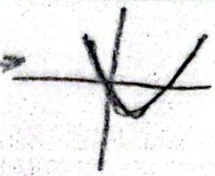
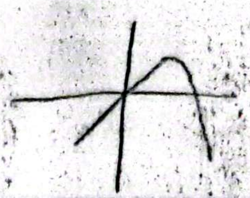
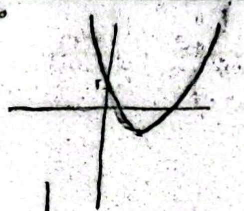
نام و نام خانوادگی ....محمد [illegible]....... پاسخنامه تشریحی تکلیف شماره ...۲۵... کلاس ...دهم [illegible]...

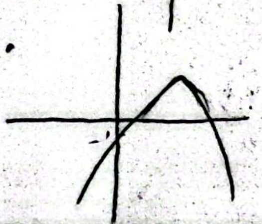
۱

الف) $y=3x^2-2x \longrightarrow \begin{cases} c=0 \\ S=\frac{2}{3}>0 \\ a>0 \end{cases} \longrightarrow$  $\longrightarrow$ $\boxed{\text{ناحیه سوم}}$ پاسخ

ب) $y=-x^2+4x \longrightarrow \begin{cases} c=0 \\ S=4>0 \\ a<0 \end{cases} \longrightarrow$  $\longrightarrow$ $\boxed{\text{ناحیه دوم}}$ پاسخ

۲

الف) $2x^2-5x+2 \longrightarrow \begin{cases} a>0 \\ S=\frac{5}{2}>0 \\ P=1>0 \\ C=2>0 \end{cases}$ $\alpha,\beta>0$ $\longrightarrow$  $\longrightarrow$ $\boxed{\text{نواحی ۱، ۲ و ۴}}$ پاسخ

ب) $y=-x^2+4x-1 \longrightarrow \begin{cases} a<0 \\ S=4>0 \\ P=1>0 \\ C=-1 \end{cases}$ $\alpha,\beta>0$ $\longrightarrow$  $\longrightarrow$ $\boxed{\text{نواحی ۱، ۳ و ۴}}$ پاسخ

۳

الف) $\frac{\alpha+\beta}{\alpha-\beta}=\frac{S}{\alpha-\beta}=\frac{1}{\frac{\sqrt{\Delta}}{|a|}}=\frac{1}{\sqrt{13}}=\boxed{\frac{\sqrt{13}}{13}}$ پاسخ

ب) $\alpha^2+\beta^2=(\alpha+\beta)^2-2\alpha\beta$ $\quad |\alpha-\beta|=\sqrt{13}$ $\quad P=-3,\ S=1$

$=S^2-2P=1-2(-3)=1+6=\boxed{7}$ پاسخ

ج) $\alpha^3+\beta^3=(\alpha+\beta)(\alpha^2+\beta^2-\alpha\beta)=S(S^2-2P-P)=S(S^2-3P)=1+9=\boxed{10}$ پاسخ

د) $\alpha^3-\beta^3=(\alpha-\beta)(\alpha^2+\beta^2+\alpha\beta)$

$=\sqrt{13}\times(S^2-\alpha\beta)=\sqrt{13}\times(S^2-P)$

$=\sqrt{13}\times 4=\boxed{4\sqrt{13}}$ پاسخ

۴

$y=(x-2)(x^2-ax+a) \longrightarrow$ ① $x^2-ax+a=(x-2)^2=x^2-4x+4 \longrightarrow \underline{a=4}$

② $\Delta<0 \longrightarrow a^2-4a<0 \longrightarrow a(a-4)<0 \longrightarrow$ $\begin{array}{c|c|c} & 0 & 4 \\ + & - & + \end{array}$ $\longrightarrow \underline{0<a<4}$

$\longrightarrow$ ①∪② $=\{4\}\cup(0,4)$ $\boxed{a\in(0,4]}$ پاسخ

۵

$0=3x^2-12x-a$ $\begin{cases} S=\frac{12}{3}=4 \\ P=-\frac{a}{3} \end{cases}$ $\longrightarrow 2\alpha^2+\beta^2-4\alpha-7=0$

$\longrightarrow (\alpha^2+\beta^2)+\alpha^2-(\alpha+\beta)\alpha-7=S^2-2P+\alpha^2-\alpha^2-\alpha\beta-7$

$=S^2-3P-7=0 \longrightarrow 16-7=3P \longrightarrow 9=3P \longrightarrow \underline{P=3}=\frac{-a}{3}$

$\longrightarrow \underline{a=-9} \longrightarrow 0=3x^2-12x+9 \xrightarrow{a+b+c=0} \begin{cases}\alpha=1 \\ \beta=\frac{9}{3}=3\end{cases} \longrightarrow 3>1 \longrightarrow \frac{-9}{3}=\boxed{-3}$ پاسخ

$a-2 = a-2 \xrightarrow{\text{ent}}$ | $t = \frac{(7-2a)+2a+3}{2} = \frac{10}{2} = 5 = \frac{-b}{2a} \to \underline{\underline{b=-10a}}$

$t-2 = 5-2 = \underline{3}$

$\begin{cases} 7-2a \in N \\ 2a+3 \in N \\ a-2 \in N \end{cases} \to \begin{cases} 7-2a>0 \to 3.5>a \\ 2a+3>0 \to a>-1.5 \\ a-2>0 \to a>2 \end{cases} \to 3.5>a>2 \to \underline{\underline{a=3}} \to A(9,1) \,,\; B(1,1)$ ۶

$\to y = ax^2 - 10ax + c$; $\xrightarrow{\text{ent}} 25a + 50a + c = 3$; $B \to a - 10a + c = 1$; $\begin{cases} -25a + c = 3 \\ -9a + c = 1 \end{cases} \to -16a = 2 \to \underline{\underline{a = -\frac{1}{8}}} \to c - 9a = 1 \to c + \frac{9}{8} = 1 \to \boxed{c = -\frac{1}{8}}$ صح

$0 = ax^2 - ax - b$; $\alpha+\beta = S = \frac{a}{a} = 1$; $\alpha\beta = P = -\frac{b}{a}$ $\longrightarrow 20(2\beta^2 + \alpha^2 - \beta) - 17 = 0$

$20(\alpha^2+\beta^2 + \beta^2 - \beta) - 17 = 20(S^2 - 2P + \beta\underbrace{(\beta-1)}_{\beta-\alpha-\beta}) - 17 = 20(S^2 - 2P - P) - 17$ ۷

$= 20(1-3P) = 17 \to 20 - 60P = 17 \to P = \frac{1}{20} = \frac{-b}{a} \to a = -20b \to 0 = +20bx - 20bx - b$

$\xrightarrow{\div b} 0 = 20x - 20x - 1 \to \frac{\sqrt{\Delta}}{|a|} = \frac{\sqrt{320}}{20} = \frac{8\sqrt{5}}{20} = \boxed{\frac{2\sqrt{5}}{5}}$ صح

---

ent | $\frac{1-5}{2} = -2$; $-\frac{1}{2}$ $\longrightarrow$ $\frac{-b}{2a} = -2 \to 4a = b$; $\frac{-\Delta}{4a} = -\frac{1}{2} \to 2a = \Delta = b^2 - 4ac = b^2 - \frac{3}{2}b = 2a \to b^2 - 2b = 0$

$b(b-2) = 0$; $\underline{\underline{b=2}}$ ✓ ; $b = 0$ ✗ غ ق ق $\longrightarrow \underline{\underline{a = 0.5}} \longrightarrow y = \frac{1}{2}x^2 + 2x + \frac{3}{2}$ ۸

$\longrightarrow \frac{1}{2}(1) + 2(1) + \frac{3}{2} = \beta \longrightarrow \boxed{\beta = 4}$ صح

$3\alpha^2 + 2\beta^2 = 3\left(\frac{-6-\sqrt{36-4a}}{2}\right)^2 + 2\left(\frac{-6+\sqrt{36-4a}}{2}\right)^2 = 3(-3-\sqrt{9-a})^2 + 2(-3+\sqrt{9-a})^2$

$= 3(9+9-a+6\sqrt{9-a}) + 2(9+9-a-6\sqrt{9-a}) = 54 - 3a + 18\sqrt{9-a} + 36 - 2a$

$-12\sqrt{9-a} = 90 - 5a + 6\sqrt{9-a} = 85 + 12\sqrt{2} \longrightarrow 5 - 5a + 6\sqrt{9-a} = 12\sqrt{2}$ ۹

$\xrightarrow{\text{حدس}} a = 1 \to 5 - 5 + 12\sqrt{2} = 12\sqrt{2}$ ✓ $\longrightarrow \boxed{a = 1}$ صح

$\frac{1}{\sqrt{\alpha}} + \frac{1}{\sqrt{\beta}} = 5 = \frac{\sqrt{\alpha}+\sqrt{\beta}}{\sqrt{\alpha\beta}} = 5 \longrightarrow \frac{\alpha+\beta+2\sqrt{\alpha\beta}}{\alpha\beta} = \frac{\frac{m+14}{36} + \frac{2}{6}}{\frac{1}{36}} = 25$

$\frac{25}{36} = \frac{m+14+12}{36} \longrightarrow 25 = 26 + m \longrightarrow \underline{\underline{m=-1}}$ ۱۰

$\longrightarrow -x^2 + 3x + 2 = 0 \longrightarrow P = \frac{2}{-1} = \boxed{-2}$ صح