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

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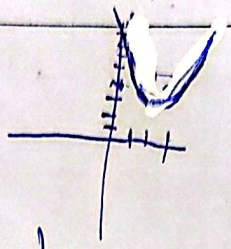
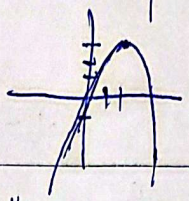
الف) $x^2-4x+7 \rightarrow x_{min}=2, y_{min}=3$



ب) $-x^2+4x-1 \rightarrow x_{max}=2, y_{max}=3$



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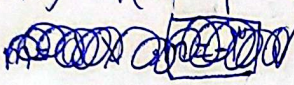
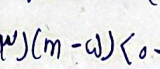
الف) $\Delta>0 \rightarrow (m+1)^2-4(2)(\frac{1}{3}m+2)=m^2+2m+1-4m-16=m^2-2m-15=(m-5)(m+3)>0$



$\rightarrow m=(-\infty,-3)\cup(5,+\infty)$

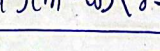
ب) $\Delta=0 \rightarrow (m+1)^2-4(2)(\frac{1}{3}m+2)=0 \rightarrow m^2-2m-15=0 \rightarrow (m-5)(m+3)=0$ $\begin{cases} m=5 \checkmark \\ m=-3 \times \end{cases}$

ج) $\Delta<0 \rightarrow m^2-2m-15<0 \rightarrow (m+3)(m-5)<0 \rightarrow$



$\rightarrow m=(-3,5)$

د) $\Delta\geq 0 \rightarrow m^2-2m-15\geq 0 \rightarrow$



$\rightarrow m=(-\infty,-3]\cup[5,+\infty)$

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$y=(m-2)x^2-2(m+1)x+10$

الف) $\frac{c}{a}>0, \Delta>0, -\frac{b}{a}<0 \rightarrow \Delta=4(m^2+1+2m)-4(m+1-2)(10)=4m^2-32m+44 \rightarrow \Delta<0$

$\frac{c}{a}=\frac{10}{m-2}>0 \rightarrow m>2 \quad \frac{2m+2}{m-2}<0 \rightarrow m<-1 \Rightarrow$ هیچ m ای برای وجود ندارد

ب) $\frac{c}{a}<0 \rightarrow \frac{10}{m-2}<0 \rightarrow m<2$, $-x_1>x_2 \rightarrow -(x_1+x_2)>0 \rightarrow 2(m+1)>0 \rightarrow m>-1$

$\cap \rightarrow m\in(-1,2)$

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الف) $y=(m-2)x^2-2(m+1)x+10$ $\frac{c}{a}<0 \rightarrow \frac{10}{m-2}<0 \rightarrow m<2$

$\Delta<0$

$x_{1,2}=\frac{(m+1)\pm\sqrt{m^2-8m+11}}{m-2} \rightarrow m\in(-\infty,2)$

ب)

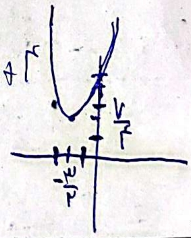
$-\frac{b}{2a}=-2 \rightarrow \frac{2m+2}{2m-4}=-2 \rightarrow 2m+2=-4m+8 \rightarrow m=1$

$\frac{2}{3}x^2-(2\sin\alpha)x+\frac{3}{2}=0 \rightarrow b^2-4ac=4\sin^2\alpha-4(\frac{2}{3})(\frac{3}{2})=4\sin^2\alpha-4\geq 0$

$\sin^2\alpha\geq 1 \rightarrow \sin\alpha=\pm 1 \Rightarrow \sin\alpha=1 \rightarrow \frac{2}{3}x^2-4x+\frac{3}{2}=0 \rightarrow 4x^2-12x+9=0$

$\Delta=(-12)^2-4(4)(9)=0 \rightarrow x=\frac{12}{2(4)}=\frac{3}{2}$ ✓ $\rightarrow \sin\alpha=1 \rightarrow x=\frac{3}{2}$

$\Rightarrow \sin\alpha=-1 \quad \frac{2}{3}x^2+4x+\frac{3}{2}=0 \rightarrow 4x^2+12x+9=0 \rightarrow \Delta=0 \rightarrow x=-\frac{3}{2}$ ×

$y=\frac{(3x^2-2x-1)(2x^2-3x-5)}{1-x^2} \to \frac{(x^2-1)(2x-5)(3x+1)}{1-x^2} = -(2x-5)(3x+1)$ $y(x)=-6x^2+13x+5 \to x_{max}=\frac{13}{12} \to y_{max}=-6(\frac{13}{12})^2+13(\frac{13}{12})+5=\boxed{\frac{289}{24}}$	
$mx^2-(m+2)x-2 \quad S=\frac{m+2}{m},\ P=\frac{-2}{m}$ $3S=7+5P \to \frac{3m+6}{m}=7+\frac{-10}{m} \to 3m+6=7m-10$ $\to m=4 \Rightarrow S=\frac{3}{2},\ P=-\frac{1}{2}$ $a^2+b^2=S^2-2P=(\frac{3}{2})^2-2(-\frac{1}{2})=\frac{9}{4}+1=\boxed{\frac{13}{4}}$	۷
$S=5,\ P=2 \qquad ab=2 \to \frac{1}{b}=\frac{a}{2} \to \frac{1}{b^2}=\frac{a^2}{4}$ $\to \frac{4a+b^5}{5b^2}=\frac{4a}{5b^2}+\frac{b^3}{5}=\frac{4a}{5}\times\frac{a^2}{4}+\frac{b^3}{5}=\frac{a^3+b^3}{5}$ $\frac{S^3-3SP}{5}=\frac{95}{5}=\boxed{19}$	۸
$y_1=ax^2+bx+c,\ y_2=2x+10 \qquad \begin{cases}a(2)^2+b(2)+c=2(2)+10\\ a(-3)^2+b(-3)+c=2(-3)+10\end{cases}$ $c=4$ $\to\begin{cases}2a+b=5\\ 3a-b=6\end{cases} \to a=1,\ b=3 \Rightarrow ax^2+bx+c=x^2+3x+4$  $\Rightarrow \frac{-b}{2a}=\boxed{\frac{-3}{2}}$ محور تقارن	۹
$y=2x^2+(m+1)x+m+6$ $\begin{cases}y=2x^2+(m+1)x+m+6\\ y=x\end{cases} \to 2x^2+mx+(m+6) \to \Delta=0 \to m^2-4(2)(m+6)=0$ $\to m^2-8m-48=0 \to m=\frac{8\pm\sqrt{64+192}}{2}=\frac{8\pm\sqrt{256}}{2} \Rightarrow \boxed{m=12}\ \boxed{m=-4}$	۱۰