نام و نام خانوادگی .....آسیه برزین..... پاسخنامه تشریحی تکلیف شماره ...۷... کلاس .....A.....

۱

$y=\frac{1}{3}x^2+\frac{2}{5}x+1 \xrightarrow{\text{ext}/\frac{1}{3}} y=-\frac{1}{3}(x-3)^2+3 \longrightarrow -\frac{1}{3}(x-3)^2+3=0$

$(x-3)^2=9$

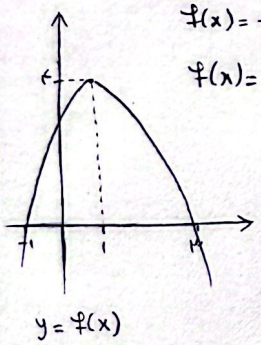
$x_1=1$

$x_2=5$

۲

$f(x)=-(x+1)(x-3)$

$f(x)=-x^2+2x+3$



$y=f(x)$

۱- $2f(3x+2)=-2\left(-(3x+2)^2+2(3x+2)+3\right)+1$

$=18x^2+12x-5$

$\text{ext}\left|\frac{-b}{2a}=\frac{-1}{3}\right. \Rightarrow \text{ext}\left|\begin{matrix}\frac{-1}{3}=\alpha\\ -1=\beta\end{matrix}\right.$

$\alpha\beta=\frac{-1}{3}\times -1=\frac{1}{3}$

۳

$x\to x+1$

$y\to -y+5$

$y=3-\sqrt{2x} \rightsquigarrow y=-(3-\sqrt{2(x+1)})+5 \Rightarrow y=\sqrt{2x+2}+2$

$\sqrt{2x+2}+2=\frac{7}{2} \to \sqrt{2x+2}=\frac{3}{2} \to 2x+2=\frac{9}{4} \to 2x=\frac{1}{4} \to x=\frac{1}{8}$

۴

$Df(x)=(a,4] \to Df(x-1)=(a+1,5]$

$Dg(x)=[-1,b) \to Dg(x+1)=[-2,b-1)$

$\Big\} \Cap \Rightarrow (a+1,b-1)=(-2,5)$

$a+1=-2 \quad a=-3$

$b-1=5 \quad b=6$

$\Big\} a-b=-3-6=-9$

۵

$y_1=f\left(\frac{x}{2}+1\right) \longrightarrow x_{min}=\frac{-3}{2}+1=-0.5 \;,\; x_{max}=2.5+1=3.5$

$x\in[-0.5,3.5] \longrightarrow R\in[-1,2] \longrightarrow y_2=\sqrt{12f(x)-3} \to 2f(x)-3\in[-5,1)$

$R_{y_2}\in[0,\sqrt{8})$

$|2f(x)-3|\in[0,5] \to y_2=\sqrt{|2f(x)-3|}$

$D_{y_2}\in[-0.5,3.5]$

۶

$[ax]=n \rightsquigarrow y=\frac{n}{a}$ $\quad n \le ax < n+1$ برای هر $a>0$

$\left.\begin{matrix} x=\frac{1}{a} \\ y=\frac{1}{4} \end{matrix}\right\} \xrightarrow{x=\frac{1}{9}} y=\frac{1}{a^2} \quad \frac{1}{a^2}=\frac{1}{4} \quad a=\pm 2 \rightarrow a=2$ (غ ق ق شیب مثبت) $\quad b=\frac{1}{a}=\frac{1}{2}$

$b-a=\frac{1}{2}-2=-\frac{3}{2}$

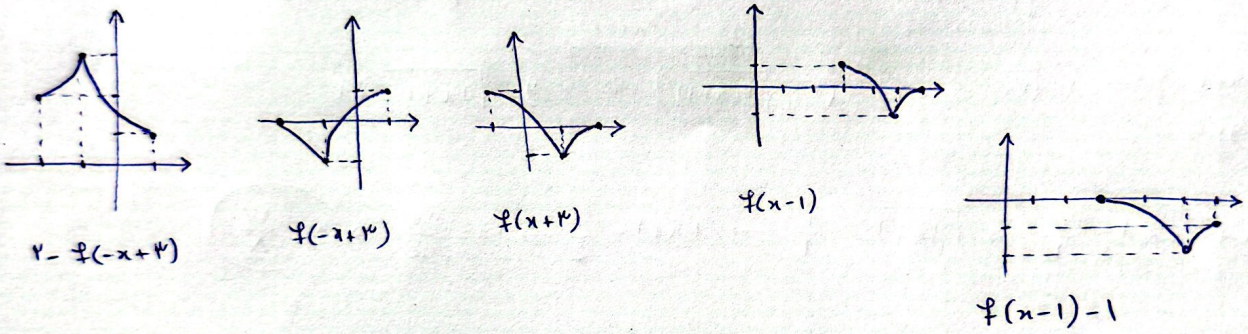
۷

$\left.\begin{matrix} x \to -x+2 \\ y \to -y+3 \end{matrix}\right\} \to g(x)=-\log_2^{-x+2}+3$

$g(-14)+g(-42)=$

$-\log_2^{16}+3-\log_2^{64}+3=-4+3-6+3=-4$

۸



۱- $f(-x+3)$ $\quad f(-x+2)$ $\quad f(x+2)$ $\quad f(x-1)$ $\quad f(x-1)-1$

۹

$g(x)=\left|\frac{x-1}{2x-3}\right|+1 \rightsquigarrow x+g(x)<0 \quad x+1+\underbrace{\left|\frac{x-1}{2x-3}\right|}_{\text{نامنفی}}<0 \rightsquigarrow x<-1$

$\frac{x-1}{2x-3}<-x+1 \xrightarrow{2x-3<0} x-1>(2x-3)(-x+1) \rightarrow x-1>-2x^2+x+3$

$x^2<4 \rightarrow x^2-4<-4$

$x<\sqrt{2}$ و $x<-\sqrt{2}$ $\leftarrow (-\infty,-\sqrt{2})$

غ ق ق زیر $x<-1$

۱۰

$f(x)=(x-2)^3+27 \qquad g(x)=\sqrt{27f(x)-f^2(x)}$

$27f(x)-f^2(x)\ge 0 \quad f(x)\left(27-f(x)\right)\ge 0 \Rightarrow \underbrace{\left((x-2)^3+27\right)}_{-1=\text{ریشه}}\underbrace{\left(27-(x-2)^3\right)}_{3=\text{ریشه}}\ge 0$

$D_g=[-1,3]$ $\leftarrow$

	-1		3	
	$-$! 0	$+$! 0	$-$	