نام و نام خانوادگی .... پاسخنامه تشریحی تکلیف شماره ..۷.. کلاس ....

۱

$y=\frac{1}{3}x^2+\frac{2}{5}x+1 \xrightarrow{ext\,|\,^{4}_{3}} y=-\frac{1}{3}(x-4)^2+3 \longrightarrow -\frac{1}{3}(x-4)^2+3=0$

$(x-4)^2=9$

$x_1=1$

$x_2=7$

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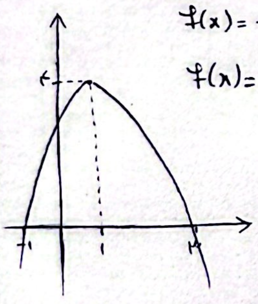

$y=f(x)$

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

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

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

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

$ext\left|\begin{matrix}\frac{-b}{2a}=\frac{-1}{3}\\ -7\end{matrix}\right. \Rightarrow ext\left|\begin{matrix}-\frac{1}{3}=\alpha\\ -7=\beta\end{matrix}\right.$

$\alpha\beta=\frac{-1}{3}\times -7=\frac{7}{3}$

۳

$x\to x+1$

$y\to -y+5$

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

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

۴

$D_{f(x)}=(a,4] \to D_{f(x-1)}=(a+1,5]$

$D_{g(x)}=[-1,b) \to D_{g(x+1)}=[-2,b-1)$

$\xRightarrow{\cap} (a+1,b-1)=(-2,5)$

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

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

$a-b=-3-6=-9$

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$y_1=f(\frac{x}{2}+1) \longrightarrow x_{min}=\frac{-3}{2}+1=-0/5 \ , \ x_{max}=2/5+1=3/5$

$x\in[-0/5,3/5] \longrightarrow R\in[-1,2] \longrightarrow y_2=\sqrt{12f(x)-3} \rightarrow 2f(x)-3\in[-5,1)$

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

$R_{y_2}\in[0,\sqrt{5})$

$D_{y_2}\in[-0/5,3/5]$

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برای هر بازه $x \le ax < x+1 \quad [ax] = x \rightsquigarrow y = \frac{x}{a}x$

$\left.\begin{array}{l} x = \frac{1}{a} \\ y = \frac{1}{4} \end{array}\right\} \xrightarrow{x=\frac{1}{a}} y = \frac{1}{a^2} \quad \frac{1}{a^2} = \frac{1}{4} \quad a = \pm 2 \rightarrow \boxed{a = 2} \quad b = \frac{1}{a} = \boxed{\frac{1}{2}}$

غ ق ق (شبه مشت)

$b - a = \frac{1}{2} - 2 = \boxed{-1.5}$

$a = -2$

$b = 1 \qquad b - a = \boxed{3}$

(1)

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

$g(-14) + g(-62) =$

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

(2)

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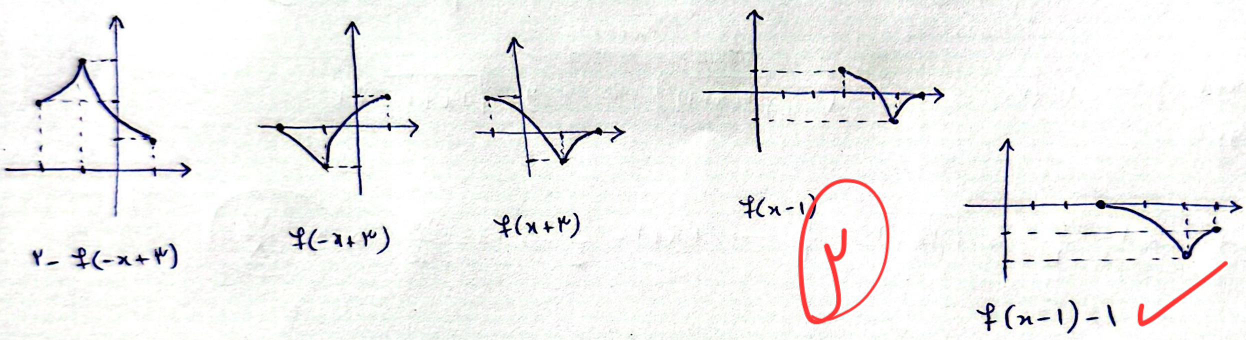

(2) ✓

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$g(x) = \left|\frac{x-1}{2x-5}\right| + 1 \rightsquigarrow x + g(x) < 0 \quad x + 1 + \underbrace{\left|\frac{x-1}{2x-5}\right|}_{\text{نامنفی}} < 0 \longrightarrow x < -1$

$\frac{x-1}{2x-5} < -x-1 \xrightarrow{2x-5<0} x - 1 > (2x-5)(-x-1) \to x - 1 > -2x^2 + x + 5$

$-6 > -2x^2 \to x^2 > 3$

$(-\infty, -\sqrt{3}) \leftarrow (x < -\sqrt{3})$ یا $x > \sqrt{3}$ ✓

غ ق ق زیرا $x < -1$

(2)

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$f(x) = (x-2)^3 + 27 \qquad g(x) = \sqrt{28 f(x) - f^2(x)}$

$28 f(x) - f^2(x) \geqslant 0 \quad f(x)\left(28 - f(x)\right) \geqslant 0 \implies \left(\underbrace{(x-2)^3 + 27}_{-1 = \text{ریشه}}\right)\left(\underbrace{28 - (x-2)^3 - 27}_{3 = \text{ریشه}}\right) \geqslant 0$

$f(x) = \frac{27}{8}(x-2)^3 + 27$

$D_f = [0, \frac{8}{3}] \rightarrow$ ۳ عدد صحیح

$D_g = [-1, 3] \longleftarrow$ $\begin{array}{ccccc} & -1 & & 3 & \\ - & 0 & + & 0 & - \end{array}$

(1)