A ۱۲ بهمن — تکلیف ۷ — پرهام مصطفی

Subject: Date:

-۱ $y=-\frac{1}{3}x^2+\frac{2}{5}x+1$ $\quad \frac{-b}{2a}=\frac{-2/5}{-2/3}=\frac{3}{5}\to y=\frac{28}{25}$

$\Delta x=4-\frac{3}{5}=\frac{17}{5}$

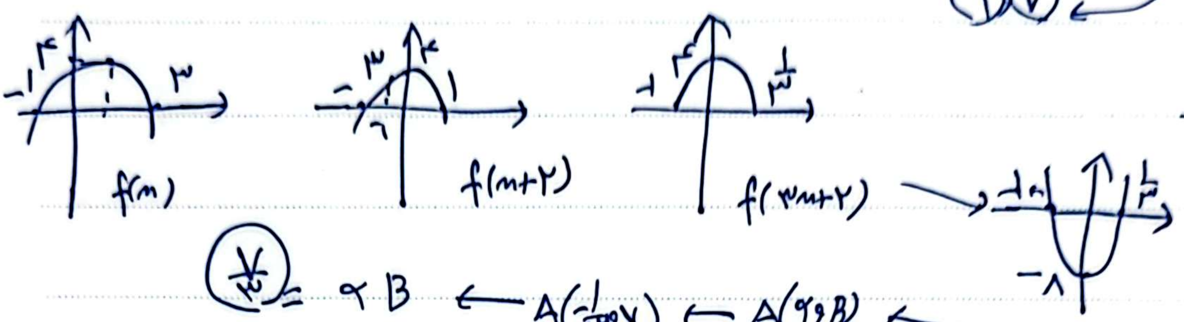
$\Delta y=\frac{328}{25}=\frac{47}{25}$

$y=-\frac{1}{3}(x-\frac{17}{5})^2+\frac{2}{5}(x-\frac{17}{5})+1+\frac{47}{25}=0$

$-75t^2+30t+216=0\longrightarrow t=\frac{30\pm\sqrt{900-4(75)(-216)}}{50}$

(۱) (۲) ← ۱۱ , ۲۰

-۲



$(\frac{7}{3})=\alpha\beta \longleftarrow A(-\frac{1}{3},7)\longleftarrow A(\alpha,\beta)\longleftarrow -3f(3x+2)$

-۳ $y=3-\sqrt{2x}\xrightarrow{\text{انتقال}} 3-\sqrt{2(x+1)}=3-\sqrt{2x+2}\xrightarrow{\text{قرینه}} y=-3+\sqrt{2x+2}$

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

-۴ $x-1\in(a,4]\Rightarrow x\in(a+1,5]$

$x+1\in[-1,b)\Rightarrow x\in[-2,b-1)$

$D=(a+1,5]\cap[-2,b-1]$, $\quad a+1=-2$, $\quad b-1=5$

$\to a=-3$, $\quad b=6$

$\boxed{a-b=-9}$

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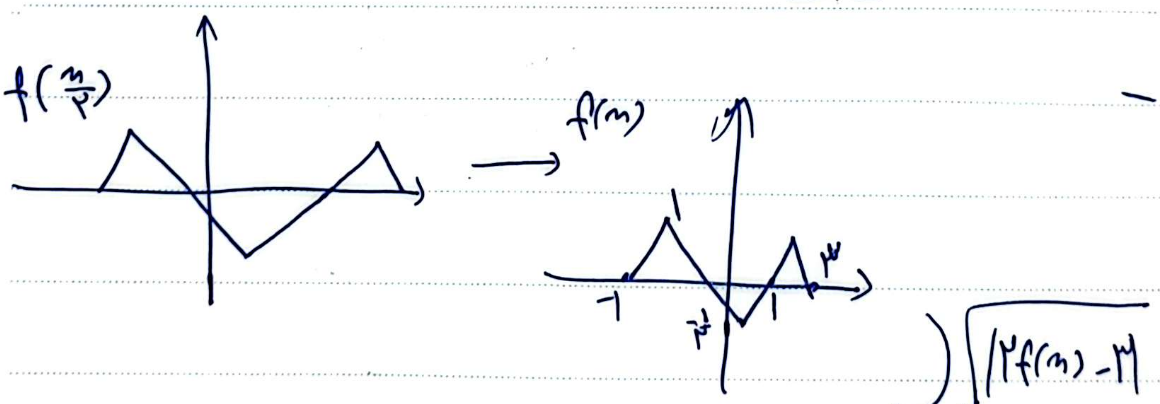

$\sqrt{|2f(x)-3|}$

$D_f=[-1,3]$

$R_f=[0,\sqrt{5}]$

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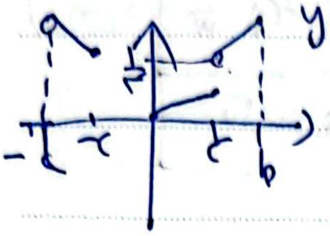


$y = \frac{x}{a}[ax] \to$

$(-b, -c] \to -2x$

$(-c, 0] \to 0$

$(0, c] \to \frac{1}{2}\, 2x$

$(c, b] \to 2x$

$\Rightarrow c = 1$

$a = -2 \to -\frac{x}{2}[-2x] \Rightarrow b = 1,\ c = \frac{1}{2}$ (۳)

۷ -

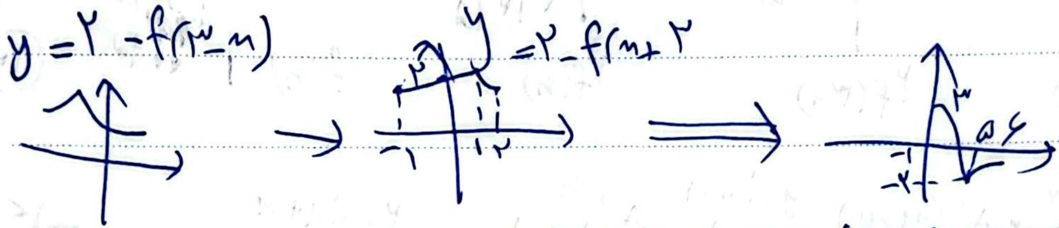
$y = \log_2 x \to y = \log_2 (x+2) \to y = -\log_2 (x+2) \to y = \log_2 (x+2) + 3$

$(-1) = -\log_2 16 + 3 = g(-14) \leftarrow g(x) = -y = \log_2 (2-x) + 3$

$g(-62) = -\log_2 64 + 3 = -3$ $\quad -1 + -3 = \boxed{-4}$

۸ -

$y = 2 - f(3-x)$ $\quad y = 2 - f(x+3)$



$y = f(x-1) - 1$

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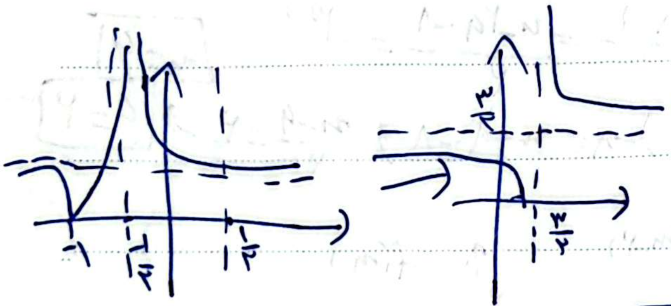

$g(x) = \left|\frac{3x-2}{2x-3}\right|$

$x + \left|\frac{3x-2}{2x-3}\right| \to$

$\boxed{x \in (-1, 0)}$

۱۰ -

$y = ax^3 \to 27 = a\,2^3 \Rightarrow a = \frac{27}{8} \to y = \frac{27}{8}x^3$

$g(x) = \sqrt{2x f(x) - f^2(x)} = \sqrt{2x\left(\frac{27}{8}x^3\right) - \left(\frac{27}{8}x^3\right)^2} = \sqrt{\left(\frac{3}{2}\right)^3 \left(x^3 (\ldots)\right)}$ [illegible]

$x \in [0, \sqrt[3]{[illegible]}] \to 0 / 1 / 2\ 3$

۴ عدد