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$f(x) = \sqrt{1-x^2}$

$g: \{(-1,1), (0,4), (2,0), (1,2)\}$

$2g - 3f = \{(-1, 2-0), (0, 8-3), (1, 4-0)\} \Rightarrow 2+5+4 = 11$

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$f(x) = 2x-1 \quad D_f = [3, +\infty)$ ⇐ خطی $[5, +\infty)$

$g(x) = \frac{1}{2}x+3 \quad D_g = (-\infty, 3]$ اجتماع D_R $(-\infty, 4]$ اجتماع شان ⇐ $(-\infty, 4] \cup [5, +\infty)$

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$y = \frac{-x^2}{2} + x + 3 \quad (a, b) \Rightarrow \frac{3}{2}$ بیشتر $\max \sqrt{b-a}$ بیشترین بازه

$\frac{-x^2}{2} + x + 3 > \frac{3}{2} \Rightarrow \frac{-x^2}{2} + x + \frac{3}{2} > 0 \quad 1 - 4\left(\frac{-1}{2} \times \frac{3}{2}\right) \quad 1+3 \Rightarrow \frac{-1 \pm 2}{-1} = \begin{cases} 3 \\ -1 \end{cases}$

$\sqrt{3-(-1)} = 2$

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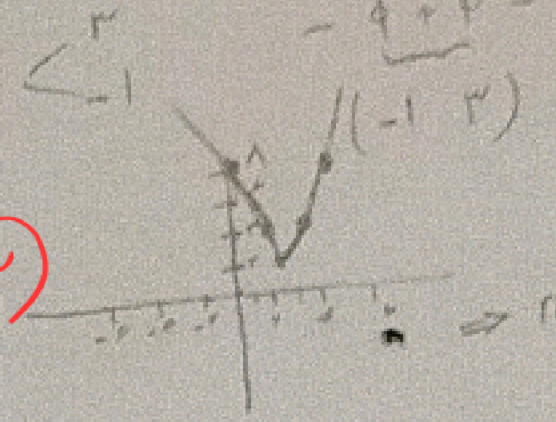
$y = |x-1| + |x-2| + |2x-4| \Rightarrow \min \Rightarrow$

$0 \Rightarrow 1+2+4 = 8$
$1 \Rightarrow 2+1+2 = 4$
$2 \Rightarrow 1+1 = 2$
$4 \Rightarrow 3+1+4 = 8$



$(-1, 3) \Rightarrow \min = 2$

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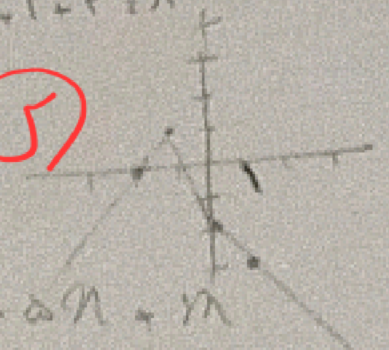
$y = |x| - 2|x-1| \quad$ ؟ $\Rightarrow$
$+1 \Rightarrow 1-0 = 1$
$-1 \Rightarrow -1-4 = -3$
$-2 \Rightarrow 2+(-2(1)) = 0$



$D_R \Rightarrow (-\infty, 1]$

$y = \frac{x^2 + 5x + m}{x+1} \quad$ ؟ $m \Rightarrow yx + y = x^2 + 5x + m \Rightarrow x^2 + (5-y)x + (m-y)$

$D_R = \mathbb{R}$

$(5-y)^2 - 4(m-y) \Rightarrow 25 + y^2 - 10y - 4m + 4y \Rightarrow y^2 - 6y + 25 - 4m - 4y$ اگر تابع کسری همواره مثبت باشد برد $\mathbb{R}$ است

$(y-3)^2 \Rightarrow y^2 - 6y + 9 \Rightarrow 16 - 4m > 0 \quad 4 > m \quad 4 > m$

$3, 2, 1$ ⇐ ۳ عدد

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$f(x) = \begin{cases} x+2 & x \geq 3 \\ x^2 - 2x + 2 & 0 < x < 3 \\ |x| + 2 & x < 0 \end{cases}$

$\Rightarrow [5, +\infty)$

$\Rightarrow [1, +\infty) \Rightarrow 3 \Rightarrow 9 - 6 + 2 \Rightarrow 5 \Rightarrow [1, 5) \Rightarrow [1, +\infty)$

$\cup$

$\Rightarrow (2, +\infty)$

$(2, +\infty)$

$f(x) = \begin{cases} x^2 + 4x + 3 & x \leq 0 \\ [2x] - 2x & x > 0 \end{cases}$

$\frac{-4}{2} \Rightarrow (-2) \Rightarrow 4 - 8 + 3 \Rightarrow [-1, +\infty) \cup (-1, 0] \Rightarrow R_f = [-1, +\infty)$

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$y = a + 1 - \sqrt{2x + 3} \geq 0$ همواره

دامنه $= [b, +\infty)$ $\quad b = \frac{-3}{2}$

$y = (-\infty, 5]$

$ab = $ ؟ $\quad 4 \times \frac{-3}{2} \Rightarrow -6$

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$2x + 3 \geq 0$

$2x \geq -3 \Rightarrow x \geq \frac{-3}{2}$

$f(x) = 2\sqrt{x+1} \geq 0 \quad 4\sqrt{1-x} \geq 0 \quad x \geq -1 \quad x \leq 1 \quad D_f = D_g$

$f(x) - 3(\sqrt{x+1} + \sqrt{1-x})^2 = -g(x)$

$y = \frac{f(x)}{4} - \frac{(g)(x)}{2}$

$h: f(x) + g(x) = 3\sqrt{2 + 2\sqrt{1-x^2}} \Rightarrow 3\left(\sqrt{(\sqrt{1+x})^2 + (\sqrt{1-x})^2 + 2\sqrt{1-x^2}}\right)$

$\Leftrightarrow 3\sqrt{(\sqrt{1+x} + \sqrt{1-x})^2}$

$3(\sqrt{1+x} + \sqrt{1-x})$

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$\frac{f(x)}{4} \Rightarrow \frac{\sqrt{x+1}}{2} + \frac{2\sqrt{1-x}}{2} + \frac{f(x)}{3} - (\sqrt{x+1} + \sqrt{1-x})$

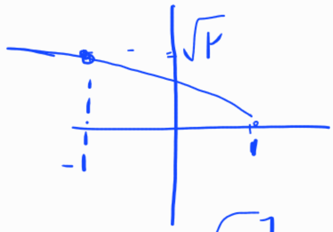
$\frac{2\sqrt{x+1}}{2} + \frac{4\sqrt{1-x}}{2} \Rightarrow \sqrt{x+1} + 2\sqrt{1-x} - \sqrt{x+1} - \sqrt{1-x}$

$\sqrt{1-x}$

$f(x)+g(x)=۳\sqrt{۲+۲\sqrt{1-x^۲}} \xrightarrow{\text{توان ۲}} 9\left(\sqrt{1-x}+\sqrt{1+x}\right)^۲ \xrightarrow{\text{جذر میگیریم}} ۳\left(\sqrt{1-x}+\sqrt{1+x}\right)$

$\rightarrow g(x)=\sqrt{1+x}-\sqrt{1-x}$

$\frac{f(x)}{۶}-\frac{g(x)}{۳}=\sqrt{1-x}$



$R\ [۰, \sqrt{۲}]$