

11, 10

Handwritten note: "Handwritten note"

1, 10

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

$$xg - xf = ? \quad -1 \leq x \leq 1$$

$$g = \{(-1,1), (0,1), (1,1)\}$$

$$D_f \cap D_g = \{-1, 0, 1\}$$

$$xg = \{(-1,1), (0,1), (1,1)\}$$

$$xf = \{(-1,0), (0,0), (1,0)\}$$

$$xg - xf = \{(-1,1), (0,1), (1,1)\}$$

$$x + f + g = 1$$

$$f(x) = x^{n-1}$$

$$D_{f(x)} = [0, +\infty)$$

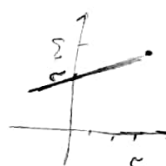
$$g(x) = \frac{1}{2}x + c$$

$$D_g = (-\infty, +\infty)$$

$$R_{g(x)} \cap R_{f(x)} = ? \quad \emptyset$$

$$R_f = [0, +\infty)$$

$$R_g = (-\infty, +\infty)$$

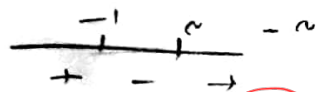


$$R = IR - (f, g)$$

$$y = -\frac{x}{c} + x + c$$

$$R: (a, b) > \frac{c}{c}$$

$$\max \sqrt{b-a}$$



$$-\frac{x}{c} + x + c > \frac{c}{c} \rightarrow -\frac{x}{c} + x + c > 0 \rightarrow \frac{x(-1)}{c} + x + c > 0 \rightarrow (x-c)(x+c) > 0$$

$$\sqrt{b-a} = r$$

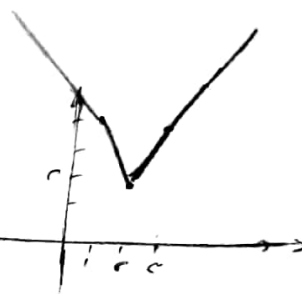
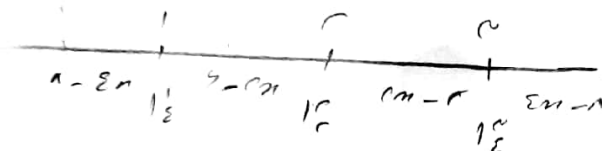
10

Original

min?

$$y = |x-1| + |x-2| + |x-3|$$

min y = 2



-ε

5

$$y = |x| - r|x+1| \rightarrow y_{el} = |x| - r|x+1| + 1$$

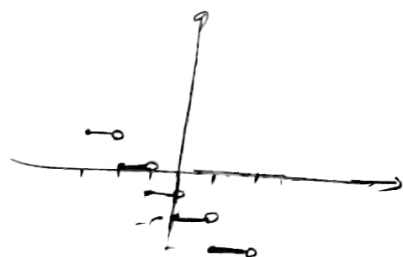
$$y_{el} = |x+1| - r|x+1| \Rightarrow y_{el} = -|x+1|$$

$$y_{el} = -|x| - 1$$

$$y = -|x| - r$$

-a

9



$$\frac{-1}{x+r \quad | -r \quad x-r \quad | -x-r}$$

$$R = (-\infty, 1]$$

$$= \frac{n^2 + 2n + 1}{n+1}$$

2

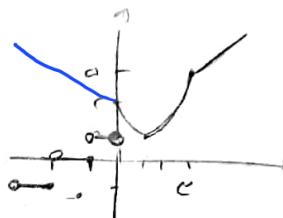
$$n^2 + 2n + 1 \geq 0$$

نیز

$$n^2 - 2n + 1 \geq 0 \rightarrow n \geq 1 \rightarrow \frac{1}{n} \geq 0$$

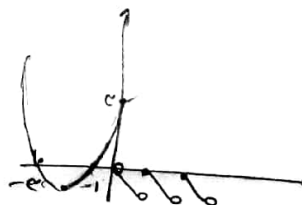
$$f(n) = \begin{cases} n^2 & n \geq 0 \\ n^2 - 2n + 1 & 0 \leq n < 1 \\ 1 & n < 0 \end{cases}$$

$$R_{f(n)} = [1, +\infty)$$



1,0

$$f(n) = \begin{cases} n^2 + 2n + 1 & n \leq 0 \\ [2n] - (n) & n > 0 \end{cases}$$



2

5

$$R_{f(n)} = [-1, +\infty)$$

$$x^2 + (a-y)x + m-y = 0 \rightarrow x = \frac{y-a \pm \sqrt{(a-y)^2 - 4(m-y)}}{2}$$

$$ay \rightarrow 1 > 0$$

$$D < 0 \rightarrow m < 1 \rightarrow$$

$$m = 1, 1, 1$$

m نکرده برابر 1 باشد

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$$y^2 - 4y + 12 - 4m > 0$$

$$y \leq a+1 - \sqrt{1+n} \leq c$$

$$(a+n) \geq c \Rightarrow a \geq c - n$$

$$y = a+1 \rightarrow a = \varepsilon$$

$$D = [b, +\infty)$$

$$R = (-\infty, a]$$

ab=? $a+b = -\frac{1}{2} + \varepsilon = -\frac{3}{2}$ (3)

$$f(n) = \mu\sqrt{n+1} + \varepsilon\sqrt{1-n}$$

$$DE = Dg$$

$$R = \frac{f(n)}{\mu} - \frac{g(n)}{\varepsilon}$$

$$f(n) + g(n) = \mu\sqrt{c + \mu\sqrt{1-n}}$$

$$\frac{(1-n)(1+n)}{((\sqrt{1-n}) + \sqrt{1+n}))^2}$$

$$f(n) + g(n) = \mu\sqrt{1-n} + \mu\sqrt{1+n}$$

$$\mu\sqrt{n+1} + \varepsilon\sqrt{1-n} = g(n) = \mu\sqrt{1-n} + \mu\sqrt{1+n}$$

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

$$\rightarrow R = \frac{\mu\sqrt{n+1} + \varepsilon\sqrt{1-n}}{\mu} = \frac{\sqrt{n+1} + \mu\sqrt{1-n}}{\mu} = \frac{\sqrt{1+n}}{\mu} + \sqrt{1-n}$$

$$\frac{\sqrt{1+n}}{\mu} = \frac{\sqrt{1+n} + \sqrt{1-n}}{\mu}$$

$$f(n) + g(n) = \mu\sqrt{1+2n} \xrightarrow{\frac{1}{\mu}}$$

$$\rightarrow g(n) = \sqrt{1+2n} - \sqrt{1-2n}$$

$$g(\sqrt{1-2n} + \sqrt{1+n}) \xrightarrow{\frac{1}{\mu}}$$

$$\frac{f(n)}{\mu} - \frac{g(n)}{\mu} = \sqrt{1-2n}$$

