

نام و نام خانوادگی: ...
پاسخنامه تشریحی تکلیف شماره ...
کلاس: دوازدهم ...

$$-2 \leq \frac{3x+2}{5} \leq 2 \Rightarrow -10 \leq 3x+2 \leq 10$$

$$-12 \leq 3x \leq 18 \quad \text{---} \quad -4 \leq x \leq 6$$

(2)

1

$$\text{if } x = -2 \rightarrow -6 - 2 = -8$$

$$\text{if } x = 3 \rightarrow 9 - 2 = 7$$

$$[-1, 7]$$

(2)

2

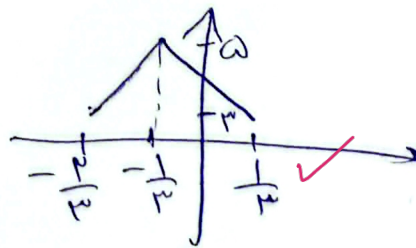
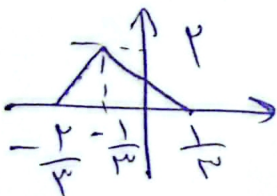
$$\left. \begin{array}{l} \text{if } x = -1 \rightarrow \frac{(3x-1)+2}{2} = -1 \\ \text{if } x = 3 \rightarrow \frac{3x+2}{2} = 2 \end{array} \right\} \rightarrow [-1, 2]$$

(2)

3

$$-1 \leq 2 - 2x < 2 \Rightarrow 2 \geq 2x > -2 \Rightarrow \frac{2}{2} \geq x > \frac{-2}{2}$$

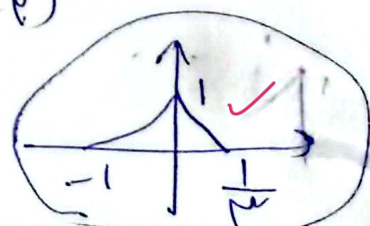
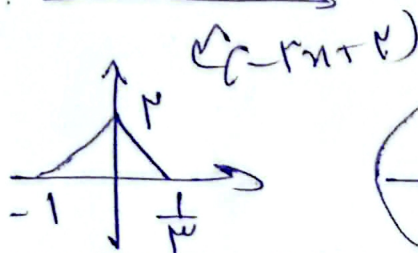
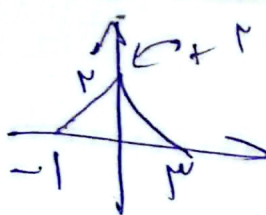
$$y = 2f(3x+1) + 2$$



(2)

4

$$\frac{1}{2} f(x-3x) \rightarrow \frac{1}{2} f(-3x+2)$$



(2)

5

$$-\frac{1}{x}x + \frac{1}{\omega}x + 1 \rightarrow -\frac{1}{x}(x-1) + 1 = 1 - \frac{1}{x}x + \frac{1}{x}x + 1$$

$$y = a(x-1)^2 + b$$

$$f(1) = (1, 1)$$

$$a = -\frac{1}{x}$$

$$x^2 - 1x + 1 \Rightarrow (x-1)(x-1)$$

$$x=1$$

$$f(1) = (1, 1) \Rightarrow x=1 \rightarrow -1 - \frac{1}{x} - \frac{1}{x}$$

$$y = 1 - \frac{x-1}{x} - 1 + 1$$

$$a, b = -\frac{1}{x}x - 1 = \left(\frac{1}{x}\right)$$

$$y = f(x-1) + g(x+1) \rightarrow D_{f(x-1)}g(x+1) = D_{f(x-1)} \cap D_{g(x+1)}$$

$$D_{f(x-1)} = (a+1, a]$$

$$D_{g(x+1)} = [-1, b-1]$$

$$\Rightarrow a+1 = -1 \Rightarrow a = -2$$

$$b-1 = 0 \Rightarrow b = 1$$

$$a-b = -2-1 = -3$$

$$D: [-1, 0] \rightarrow -1 \leq x \leq 0 \Rightarrow -\frac{1}{x} \leq \frac{x}{x} \leq \frac{0}{x}$$

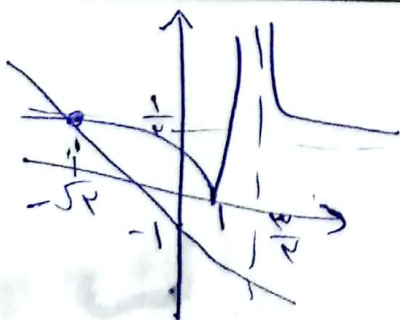
$$-\frac{1}{x} \leq \frac{x}{x} + 1 \leq \frac{0}{x}$$

$$R: [-1, 1] \rightarrow -1 \leq f(x) \leq 1 \Rightarrow 0 \leq |f(x)| \leq 1$$

$$D_{y,x} = \left[-\frac{1}{x}, \frac{0}{x}\right]$$

$$R_{y,x} = [0, 1]$$

$$\Rightarrow 0 \leq \sqrt{|f(x)-1|} \leq 1$$



$$f(x-1)+1 = \left| \frac{x-1+1}{x(x-1)+1} \right| + 1$$

$$\left| \frac{x-1}{x(x-1)+1} \right| + 1 + x < 0 \Rightarrow x-1 = -x^2 + x + 1$$

$$\Rightarrow x^2 - 2 = 0 \Rightarrow x = \pm\sqrt{2}$$

$$x < \sqrt{2} \quad x = -\sqrt{2}$$

$$D_{y_1} = [-r, \Delta] \rightarrow -r \leq x \leq \Delta \rightarrow -\frac{1}{r} \leq \frac{x}{r} + 1 \leq \frac{\Delta}{r} \Rightarrow D_f = \left[-\frac{1}{r}, \frac{\Delta}{r}\right] \quad .9$$

$$R_{y_1} = [-1, r] \rightarrow -1 \leq f \leq r \rightarrow -\Delta \leq rf - r \leq 1 \rightarrow 0 \leq |rf - r| \leq \Delta$$

$$0 \leq \sqrt{|rf - r|} \leq \sqrt{\Delta} \Rightarrow R_f = [0, \sqrt{\Delta}]$$