

18, 20

نام و نام خانوادگی: شماره تکلیف: کلاس: دروس:

$$-\varepsilon \leq 3x - 2 \leq \varepsilon \rightarrow -2 \leq 3x \leq 2 + \varepsilon \rightarrow -\frac{2}{3} \leq x \leq \frac{2 + \varepsilon}{3} \rightarrow$$

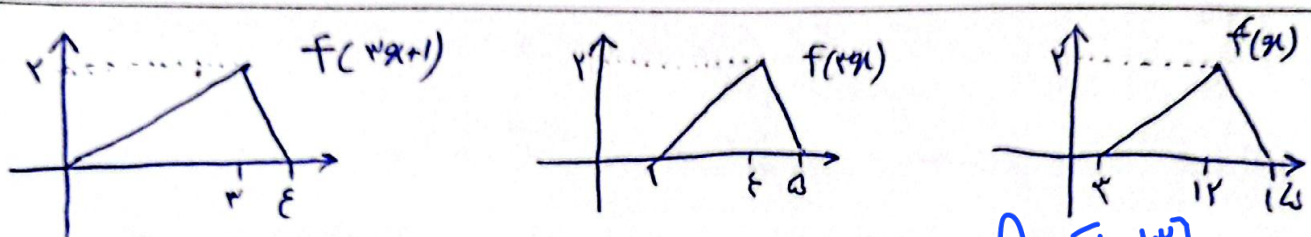
$$D_{f(3x-2)} = \left[-\frac{2}{3}, \frac{2}{3} \right]$$

$$-\varepsilon \leq x \leq -2 \rightarrow -12 \leq 3x \leq -2 \rightarrow -1 \leq 3x - 2 \leq -1$$

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

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

$$y = y - 2 + \sqrt{y - 2} \rightarrow \sqrt{y - 2} = 2 \rightarrow y - 2 = 4 \rightarrow y = 6$$



$$S = \frac{2 \times (15 - 3)}{2} = 12$$

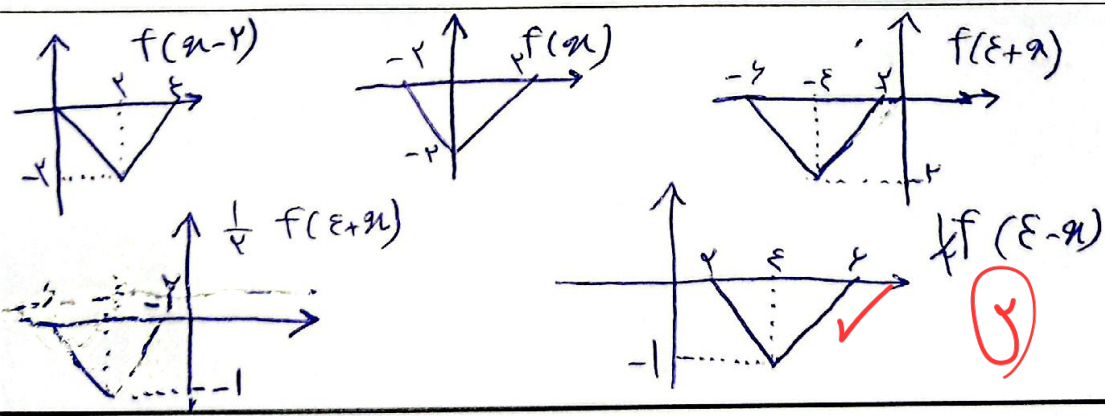
$$D_f = [1, 13]$$

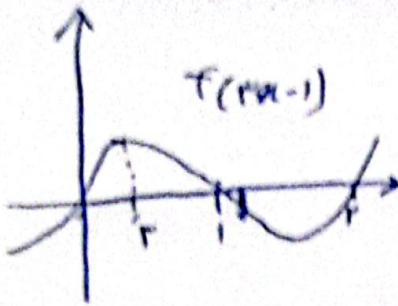
$$\frac{x-a}{2} = 2 \rightarrow x = 2 + a$$

$$y = x + 2f\left(\frac{\varepsilon + a - a}{2}\right) = a + 2f(2)$$

$$f(2) = -3 \rightarrow a - 2 = y \Rightarrow y = 2x - 1 \rightarrow a - 2 = 2x - 1 \rightarrow x = \frac{a-1}{2}$$

$$a - 2 = 2\left(\frac{\varepsilon + a}{2}\right) - 1 \rightarrow a = \varepsilon$$





$$-2 + \frac{1}{2} - \frac{1}{2} + \frac{1}{2} - \frac{1}{2} + D_y = [2, 0] \cup [0, 2]$$

$$= (x+2)f(x-1) \geq 0 \rightarrow (x+2)f(x-1) \leq 0$$

$$g(x) = |x(x+k) - 3| - 2 = |x^2 + kx - 3| - 2 \xrightarrow{\text{در } x=0} g(0) = | -3 | - 2 = 1$$

$$f(0) = g(0) \rightarrow E = |xk - 3| - 2 \rightarrow |xk - 3| = 5$$

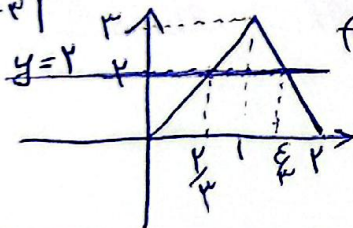
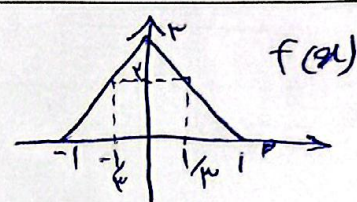
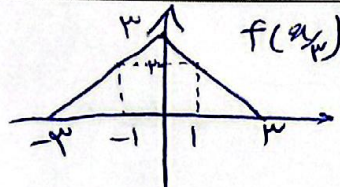
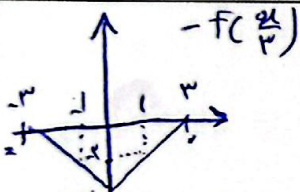
$$\frac{xk - 3 \geq 5}{xk - 3 \leq -5} \rightarrow k = \frac{8}{x} \quad \text{و} \quad k = -\frac{2}{x}$$

$$g(x) = \frac{1-x^2}{x+3} + k \quad f(x) = g(x) \rightarrow \frac{x^2-1}{x+1} = \frac{1-x^2}{x+3} + k$$

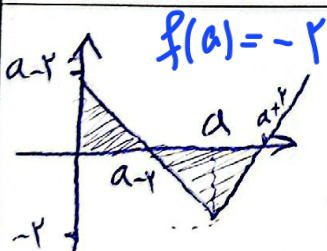
$$k = \frac{(x^2-1)(x+3) - (1-x^2)(x+1)}{(x+1)(x+3)} = \frac{x^3+3x^2-x-3 - (1-x^2-x-1)}{(x+1)(x+3)} = \frac{x^3+3x^2-x-3 - 1+x^2+x+1}{(x+1)(x+3)} = \frac{x^3+4x^2-2x-2}{(x+1)(x+3)}$$

$$\rightarrow \frac{x^3+4x^2-2x-2}{x^2+4x+3} = k \rightarrow (x-k)x^2 + (4-4k)x - 2-3k = 0$$

$$x-k=0 \rightarrow x=k \quad \text{در نتیجه:}$$



$$\text{مساحت} = \frac{1 \times (\frac{2}{3} - \frac{2}{3})}{2} = \frac{1}{3}$$



$$\frac{a}{2} = \delta_1 + \delta_2 = \frac{(a-1)^2}{2} + \frac{a-1}{2} \rightarrow a^2 - \epsilon a + \epsilon = 1$$

$$\rightarrow a^2 - \epsilon a - 1 = 0 \rightarrow a_1, a_2 = \frac{\epsilon \pm \sqrt{\epsilon^2 + 4}}{2}$$

$$f(\frac{1}{a}) = |\frac{1}{a} - a| - 2 \xrightarrow{\frac{1}{a} - a \leq 0} f(\frac{1}{a}) = \frac{a^2-1}{a} - 2 = \frac{a^2-1-2a}{a} = \frac{a^2-2a-1}{a}$$

$$\frac{\epsilon + 1 + \epsilon\sqrt{1+\epsilon} - 1}{2 + \sqrt{1+\epsilon}} - 2 = \frac{1 - 2\sqrt{1+\epsilon}}{2 + \sqrt{1+\epsilon}}$$

$$a = \frac{1}{2} \quad f(\frac{1}{2}) = \frac{2}{1} = 2$$

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