

رادیان متکلیان دایره

۱۷,۵

$$-2 \leq 2 \leq 4 \Rightarrow -2 \leq 3x + 2 \leq 14 \Rightarrow -\frac{2}{3} \leq \frac{3x+2}{3} \leq \frac{14}{3}$$

$$\Rightarrow D_f = \left[-\frac{2}{3}, \frac{14}{3}\right]$$

۰-۱

صفحه آخر

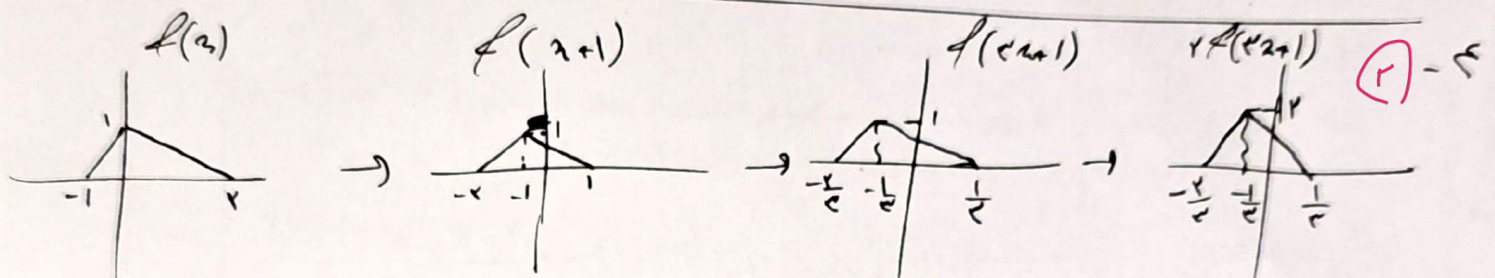
$$-2 \leq 2 \leq 4 \Rightarrow -1 \leq 3x - 2 \leq 4 \Rightarrow D_f = [-1, 4]$$

۱-۲

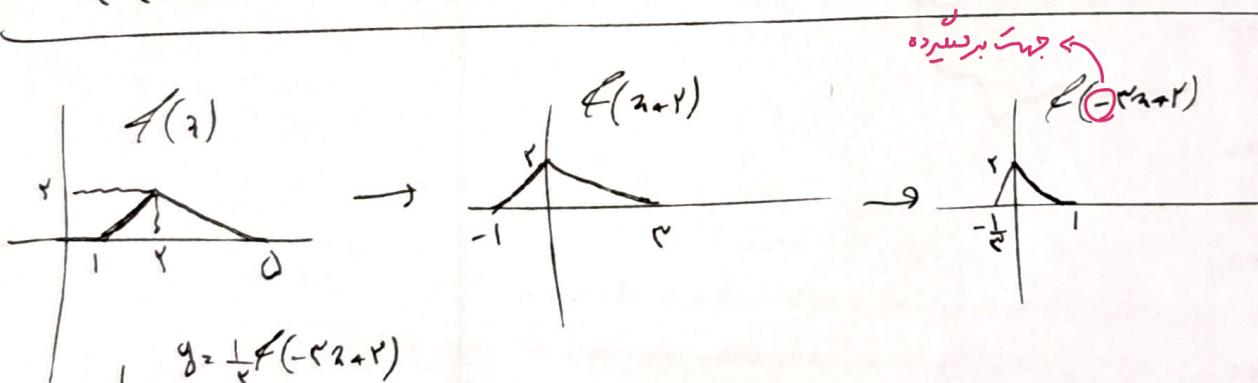
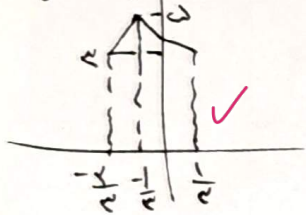
$$-1 \leq 2 \leq 4 \Rightarrow -2 \leq 3x + 1 \leq 10 \Rightarrow -1 \leq \frac{3x+1}{3} \leq \frac{10}{3} \Rightarrow D_f = \left[-1, \frac{10}{3}\right]$$

۲-۳

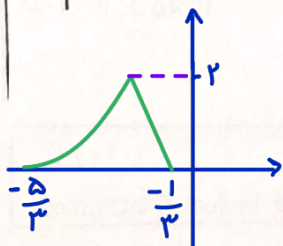
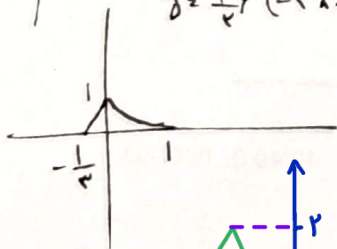
$$-1 \leq 4 - 2x \leq 4 \Rightarrow -3 \leq -2x \leq 2 \Rightarrow -\frac{3}{2} \leq x \leq \frac{2}{2} \Rightarrow D_f = \left[-\frac{3}{2}, 1\right]$$



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

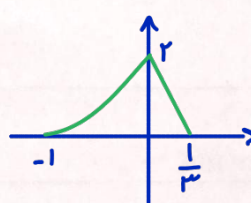


$$y = \frac{1}{2}f(-2x+2)$$



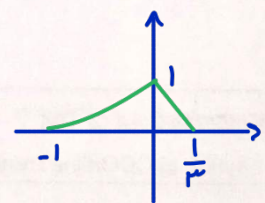
$$y = f(-2x)$$

۲/۳ واحد به راست



$$y = f(-2(x - \frac{2}{3}))$$

$$y = f(2(x - \frac{2}{3}))$$



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

$$\text{Ext} \begin{cases} x_1 = \frac{5}{2} \\ y_1 = \frac{11}{20} \end{cases}$$

$$\frac{5}{2} + \alpha = 5 \Rightarrow \alpha = \frac{5}{2}$$

$$\frac{11}{20} + \beta = 5 \Rightarrow \beta = \frac{95}{20}$$

(2) - 4

$$y = -\frac{1}{4}x^2 + \frac{5}{2}x + 1 = -\frac{5V}{20} \Rightarrow -20x^2 + 50x + 20 = -151 \Rightarrow 20x^2 - 50x - 171 = 0$$

$$\Rightarrow (0.2 - 1.1)(0.2 + 1.2) = 0 \Rightarrow \begin{cases} x_1 = \frac{1.1}{2} + \frac{1.9}{2} = 1.5 \\ x_2 = -\frac{1.1}{2} + \frac{1.9}{2} = 0.4 \end{cases}$$

$$\begin{cases} 5\alpha + 2 = 1 \Rightarrow \alpha = -\frac{1}{5} \\ 1 - 5f(1) = -5 \Rightarrow \beta = -5 \end{cases} \Rightarrow \alpha\beta = \frac{1}{5}$$

(2) - 10

$$P_{f(2-1)} = (a+1, b)$$

$$P_{f(2+1)} = (-1, b-1)$$

$$P_{f(2-1)} \cap P_{f(2+1)} = (-1, b) \Rightarrow a-b = -9$$

$$\begin{cases} a+1 = -1 \Rightarrow a = -2 \\ b-1 = b \Rightarrow b = 9 \end{cases}$$

(2) 5

$$-5 \leq x \leq 5 \Rightarrow -0.5 \leq \frac{x+1}{2} \leq 2.5 \Rightarrow P_f = [-0.5, 2.5]$$

(2) 5

$$\Rightarrow P_{g_1} = [-0.5, 2.5]$$

$$P_{g_1} = R_{f(\frac{x}{2})} = R_{f(x)} \Rightarrow -1 \leq f(x) \leq 2 \Rightarrow -4 \leq f(x) - 5 \leq 1$$

$$\Rightarrow 0 \leq |f(x) - 5| \leq 5 \Rightarrow 0 \leq g_1 \leq 5 \Rightarrow R_{g_1} = [0, 5]$$

$$g(x) = f(x-1) + 1 = \left| \frac{(x-1)+1}{x(x-1)+1} \right| + 1 = \left| \frac{x}{x^2-x+1} \right| + 1$$

(2) 5

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

$$x^2 - x \rightarrow x^2 - x + x^2 - x < 0 \Rightarrow 2x^2 - 2x < 0 \Rightarrow x^2 - x < 0 \Rightarrow x > 1 \Rightarrow \begin{cases} x > \sqrt{1} \\ x < -\sqrt{1} \end{cases} \Rightarrow x < -1$$

$$D_f = [-r, r] \rightarrow -r \leq \frac{r_n + r}{\Delta} \leq r \rightarrow -1 \leq r_n + r \leq 1 \rightarrow -r \leq n \leq 4$$

$$D_g = [-r, 4]$$