

برای حل این سوال

۱۹، ۷۵

در اینجا

①

$$-2 \leq \frac{x+2}{5} \leq 2 \Rightarrow -10 \leq x+2 \leq 10 \Rightarrow -12 \leq x \leq 8 \Rightarrow -2 \leq x \leq 2$$

$$D_{f(\frac{x+2}{5})} = [-2, 2]$$

② ③

$$-2 \leq x \leq 2 \Rightarrow -6 \leq 3x \leq 6 \Rightarrow -1 \leq 3x-2 \leq 4 \Rightarrow D_{f(3x)} = [-1, 4]$$

② ④

$$-1 \leq x < 2 \Rightarrow -\frac{1}{2} \leq \frac{x}{2} < 1 \Rightarrow -1 \leq \frac{3}{2}x + \frac{1}{2} \leq 5$$

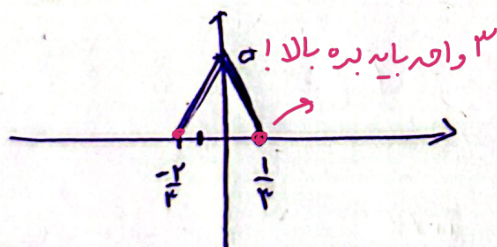
$$-1 \leq 2-x < 5 \Rightarrow -3 \leq -x < 3 \Rightarrow -3 < x \leq 3 \Rightarrow -\frac{3}{2} < x \leq \frac{3}{2}$$

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

④ ⑤

$$-1 \leq 3x+1 \leq 2 \Rightarrow -2 \leq 3x \leq 1 \Rightarrow -\frac{2}{3} \leq x \leq \frac{1}{3}$$

$$x \in [0, 1] \Rightarrow f(1) = 3$$

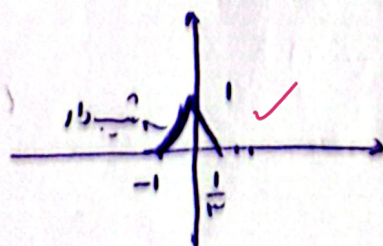


صفحه بعد ...

$$1 \leq 2-3x \leq 5 \Rightarrow -1 \leq -3x \leq 3 \Rightarrow -1 \leq x \leq \frac{1}{3}$$

$$x \in [0, 1]$$

② ⑤



به کمک قاعده هس

② صیقل بخشیدن به درج دوم و درج اول

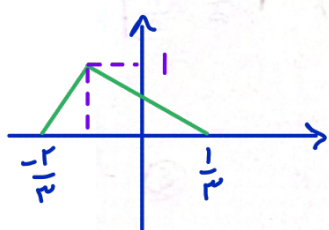
②

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

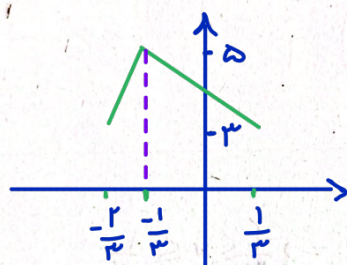
$$-\frac{1}{3}(x^2 - 8x + 16) + 3 = -\frac{1}{3}x^2 + \frac{8}{3}x - \frac{16}{3} + 3 = -\frac{1}{3}x^2 + \frac{8}{3}x - \frac{7}{3}$$

$$\xrightarrow{x_2} x^2 - 8x + 7 = (x-7)(x-1)$$

$$\boxed{x=7, 1}$$



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



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

۲

$$\boxed{R_y = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}} = \frac{1}{\sqrt{1 + f^2}} \begin{bmatrix} 1 & f \\ -f & 1 \end{bmatrix}$$

$$\begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix} = \frac{1}{\sqrt{1 + f^2}} \begin{bmatrix} 1 & f \\ -f & 1 \end{bmatrix} =$$

$$\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} = \frac{1}{\sqrt{1 + f^2}} \begin{bmatrix} 1 & f \\ -f & 1 \end{bmatrix} \Rightarrow \begin{bmatrix} 1 & 1 \\ 1 & 1 \end{bmatrix} = \frac{1}{\sqrt{1 + f^2}} \begin{bmatrix} 1 & f \\ -f & 1 \end{bmatrix}$$

$$R_y = \frac{1}{\sqrt{1 + f^2}} \begin{bmatrix} 1 & f \\ -f & 1 \end{bmatrix} = \frac{1}{\sqrt{1 + f^2}} \begin{bmatrix} 1 & f \\ -f & 1 \end{bmatrix}$$

(1)

$$\textcircled{b} \begin{bmatrix} 1 & 1 \\ 1 & 1 \end{bmatrix} = \frac{1}{\sqrt{1 + f^2}} \begin{bmatrix} 1 & f \\ -f & 1 \end{bmatrix} \Rightarrow \frac{1}{\sqrt{1 + f^2}} = \frac{1}{\sqrt{1 + f^2}} \Rightarrow \frac{1}{\sqrt{1 + f^2}} = \frac{1}{\sqrt{1 + f^2}}$$

$$\boxed{b} = \frac{1}{\sqrt{1 + f^2}} \begin{bmatrix} 1 & f \\ -f & 1 \end{bmatrix} \Rightarrow \frac{1}{\sqrt{1 + f^2}} = \frac{1}{\sqrt{1 + f^2}} \Rightarrow \frac{1}{\sqrt{1 + f^2}} = \frac{1}{\sqrt{1 + f^2}}$$

$$(a+1) \begin{bmatrix} 1 & 1 \\ 1 & 1 \end{bmatrix} = \frac{1}{\sqrt{1 + f^2}} \begin{bmatrix} 1 & f \\ -f & 1 \end{bmatrix}$$

$$\boxed{a+1} = \frac{1}{\sqrt{1 + f^2}} \begin{bmatrix} 1 & f \\ -f & 1 \end{bmatrix} \Rightarrow \frac{1}{\sqrt{1 + f^2}} = \frac{1}{\sqrt{1 + f^2}} \Rightarrow \frac{1}{\sqrt{1 + f^2}} = \frac{1}{\sqrt{1 + f^2}}$$

$$\textcircled{a} \textcircled{b} \boxed{a+1} = \frac{1}{\sqrt{1 + f^2}} \begin{bmatrix} 1 & f \\ -f & 1 \end{bmatrix} \Rightarrow \frac{1}{\sqrt{1 + f^2}} = \frac{1}{\sqrt{1 + f^2}} \Rightarrow \frac{1}{\sqrt{1 + f^2}} = \frac{1}{\sqrt{1 + f^2}}$$

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(1) (2)

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(10)

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

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

$$\begin{array}{c|c|c} 1 & x & x \\ \hline + & - & + \end{array} \quad x \leq 1, x > \frac{1}{x} \Rightarrow x + \frac{x-1}{x^2-x+1} + 1$$

$$\textcircled{1} = \frac{x^2 - x + x - 1 + x^2 - x}{x^2 - x + 1} = \frac{2x^2 - x - 1}{x^2 - x + 1}$$

⌋

$$1 < x < \frac{1}{x} \Rightarrow x + \frac{-x+1}{x^2-x+1} + 1 = \frac{x^2 - x - x + 1 + x^2 - x + 1}{x^2 - x + 1}$$

$$= \frac{2x^2 - 2x + 2}{x^2 - x + 1}$$

$$\textcircled{1} \quad \frac{2x^2 - x}{x^2 - x + 1} < \Rightarrow \frac{x(x+1)(x-1)}{x^2 - x + 1}$$

$$\begin{array}{c|c|c|c} -x & x & \frac{1}{x} & x \\ \hline - & + & - & + \end{array}$$

$$\Rightarrow (-\infty, -\sqrt{x}) \quad \Delta = x + 2x^2 + 1 = 2x^2 + 2x + 1$$

$$\frac{2 \pm 2\sqrt{x}}{2}$$

$$= 1 \pm \sqrt{x}$$

$$\textcircled{2} \quad \begin{array}{c|c|c} \frac{1-\sqrt{x}}{x} & x & \frac{1+\sqrt{x}}{x} \\ \hline - & + & - & + \end{array}$$

⊗

$$\Rightarrow \boxed{(-\infty, -\sqrt{x})}$$