

(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)

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

(3)

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

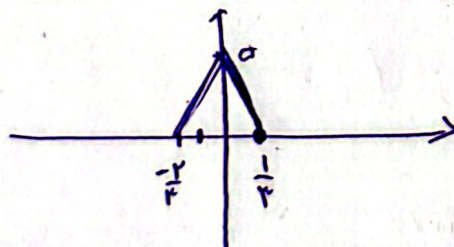
$$-1 \leq 1-x < 1 \Rightarrow -2 \leq -x < 0 \Rightarrow 0 < x \leq 2 \Rightarrow \frac{x}{2} < 1 \leq \frac{x}{2}$$

$$D_{f(1-x)} = \left[-\frac{1}{2}, \frac{1}{2}\right]$$

(4)

$$-1 \leq x+1 \leq 1 \Rightarrow -2 \leq x \leq 0 \Rightarrow \frac{-2}{2} \leq x \leq \frac{0}{2} \Rightarrow -1 \leq x \leq 0$$

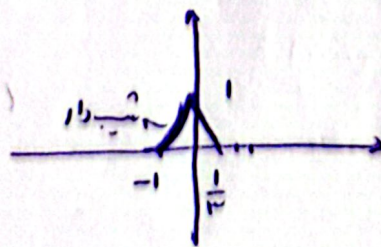
$$x \in [0, 1]$$



(5)

$$1 \leq 1-x \leq 2 \Rightarrow 0 \leq -x \leq 1 \Rightarrow \frac{0}{2} \leq x \leq \frac{1}{2} \Rightarrow 0 \leq x \leq \frac{1}{2}$$

$$x \in [0, \frac{1}{2}]$$



به کمک قیاس و حد

② حد انتگرال در ربع اول منبسط در ربع منبسط

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

$$-\frac{1}{3}(x^2 - 8x + 16) + 3 = -\frac{1}{3}x^2 + \frac{8}{3}x - \frac{16}{3} + \frac{9}{3} = -\frac{1}{3}x^2 + \frac{8}{3}x - \frac{7}{3}$$

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

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

$$\boxed{R_y = [0, 1, 0]} = \frac{1}{\sqrt{1 + f^2(y)}} =$$

$$[0, 1, 0] = \frac{1}{\sqrt{1 + f^2(y)}} =$$

$$[1, 1, 1] = \frac{1}{\sqrt{1 + f^2(y)}} \quad [3, 1, 1] = \frac{1}{\sqrt{1 + f^2(y)}} = [1, 1, 1]$$

$$R_y = \left[\frac{1}{\sqrt{1 + f^2(y)}}, \frac{1}{\sqrt{1 + f^2(y)}} \right] = \frac{1}{\sqrt{1 + f^2(y)}} =$$

$$\textcircled{b} \left[\frac{1}{\sqrt{1 + f^2(y)}}, \frac{1}{\sqrt{1 + f^2(y)}} \right] = \frac{1}{\sqrt{1 + f^2(y)}} = \frac{1}{\sqrt{1 + f^2(y)}} = \frac{1}{\sqrt{1 + f^2(y)}} =$$

$$\boxed{b} = b - 1 = -1 - b \quad \boxed{y} = y = 1 - b$$

$$(a+1, b) = (1-b, 1-b) \cup [1, 1-b]$$

$$\boxed{a < b} = -1 < a < b = -1 < a < b =$$

$$\boxed{a+1} = a < a+1 \leq a \Rightarrow a < a+1 \leq a =$$

②

$$\boxed{\frac{1}{x}} = \frac{1}{x} = \frac{1}{x} = \frac{1}{x} =$$

$$b = \boxed{1} = 1 - 1 = 0 = 1 - 1 = 0 =$$

$$\boxed{\frac{1}{x}} = \frac{1}{x} = \frac{1}{x} = \frac{1}{x} =$$

③

Handwritten notes and scribbles at the bottom of the page.

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

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

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

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

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

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

$\begin{array}{c|c|c|c} - & + & - & + \end{array}$
 $\Rightarrow (-\infty, -1)$

$\Delta = 1 + 2x + x^2 = (x+1)^2$
 $\sqrt{\Delta} = x+1$

$$\frac{x \pm (x+1)}{x}$$

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

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

$\Rightarrow (-\infty, -1)$
 صواب