

$$\Rightarrow -2 \leq \frac{3x+2}{5} \leq 4 \xrightarrow{\times 5} -10 \leq 3x+2 \leq 20$$

$$-12 \leq 3x \leq 18 \rightarrow -4 \leq x \leq 6 \rightarrow D = [-4, 6]$$

(2)

1

$$\Rightarrow x = -2 \rightarrow -4 - 2 = -6$$

$$\Rightarrow x = 3 \rightarrow 9 - 2 = 7$$

$$D_f = [-6, 7]$$

(2)

2

$$x = -1 \rightarrow \frac{-3+1}{2} = -1, x = 3 \rightarrow \frac{9+1}{2} = 5 \Rightarrow D_f = [-1, 5]$$

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

$$D_f(2-5x) = \left[\frac{3}{5}, \frac{3}{5}\right]$$

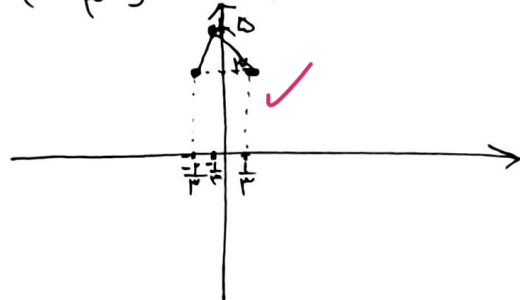
(2)

3

$$(-1, 0), (0, 1), (2, 0) \rightarrow (x, y) = \left(\frac{a-1}{3}, \frac{2b+3}{3}\right)$$

$$\downarrow \quad \downarrow \quad \downarrow$$

$$\left(\frac{-2}{3}, 3\right) \quad \left(\frac{1}{3}, 5\right) \quad \left(\frac{1}{3}, 3\right)$$



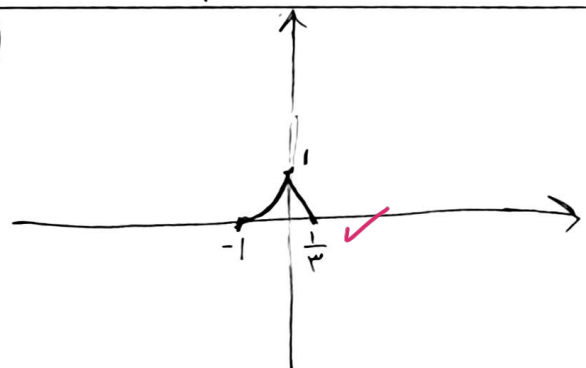
(2)

4

$$(1, 0), (2, 2), (5, 0) \rightarrow (x, y) = \left(\frac{2-a}{3}, \frac{b}{3}\right)$$

$$\downarrow \quad \downarrow \quad \downarrow$$

$$(-1, 0) \quad (0, 1) \quad \left(\frac{1}{3}, 0\right)$$



(2)

5

$(1, 3) \rightarrow g(x) = -\frac{1}{x} (x-1)^2 + 3 \Rightarrow (x-1)^2 = 4 \Rightarrow x-1 = \pm 2$ $x_1 = -1, x_2 = 3$	(2) 6
$\Rightarrow f(x) = -(x-1)^2 + 3 \xrightarrow{x \rightarrow 3} f(3x+1) = -((3x+1)-1)^2 + 3$ $\Rightarrow y = 1 - 2[-(3x+1)^2 + 3] \Rightarrow y = 2(3x+1)^2 - 5$ $3x+1 = 0 \Rightarrow x = -\frac{1}{3}, y = -5 \Rightarrow (\alpha, \beta) = (-\frac{1}{3}, -5)$ $\alpha\beta = (-\frac{1}{3})(-5) = \frac{5}{3}$	(2) 7
$\Rightarrow a = -2-1 = -3, b = 5+1 = 6$ $\rightarrow a-b = -3-6 = -9$	(2) 8
$x = -\frac{1}{2} \rightarrow -\frac{1}{x} + 1 = \frac{1}{2}, x = 5 \rightarrow \frac{5}{x} + 1 = \frac{6}{5} \Rightarrow D = [\frac{1}{2}, \frac{6}{5}]$ $-1 \leq f(x) \leq 2 \Rightarrow -5 \leq 2f(x) - 3 \leq 1 \Rightarrow 0 \leq 2f(x) - 3 \leq 5$ $R = [0, \sqrt{5}]$	(2) 9
$\Rightarrow g(x) = f(x-1) + 1 \Rightarrow g(x) = \left \frac{x-1}{2x-3} \right + 1$ $\rightarrow x + \left \frac{x-1}{2x-3} \right + 1 < 0 \rightarrow x < -1 \rightarrow \frac{2(x-\sqrt{3})(x+\sqrt{3})}{2x-3} < 0$ $\Rightarrow x \in (-\infty, -\sqrt{3})$	(2) 10