

$$f(x) = (1)^{2-x} - 1$$

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

(1)

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

$$1 - x = 0 \Rightarrow x = 1$$

$$\frac{1}{-1} = -1$$

$$Df = [0, 1]$$

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

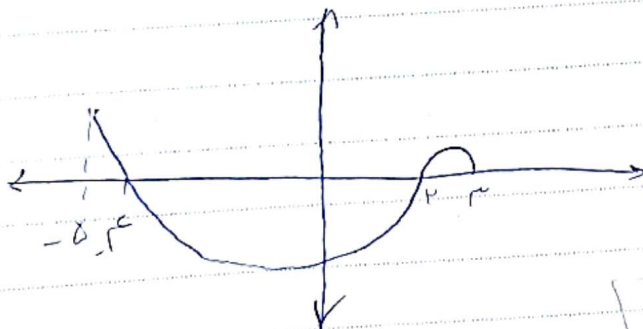
$$f(-x) = \sqrt{-x + |2 - x|}$$

$$x < 2 \Rightarrow -x + 2 - x = 2 - 2x > 0$$

$$2x < 2 \Rightarrow x < 1$$

$$-x + x - 2 > 0 \quad \times$$

$$Df = (-\infty, 1]$$



| $x$    | $-2$ | $-1$ | $0$  | $1$ | $2$ |
|--------|------|------|------|-----|-----|
| $f(x)$ | $0$  | $1$  | $1$  | $2$ | $2$ |
| $x-1$  | $-3$ | $-2$ | $-1$ | $0$ | $1$ |
| $y$    | $0$  | $1$  | $1$  | $2$ | $2$ |

$$Df = (-2, 1] \cup (2, 3)$$

$$y_1 = \frac{1}{9x^2 - \sqrt{x^2 - 2x - 3}}$$

$$y_2 = \frac{1}{\sqrt{x^2 - 2x - 3}}$$

$$x^2 - 2x - 3 = 0$$

$$|d^2 < rec|$$

Arman

$$C = r$$

$$r^2 d + r^2 a = 0$$

$$a = -d$$

$$r^2 e - a^2 + r^2 b = -V$$

$$a e - a b = -r^2$$

$$a(e-b) = -r^2$$

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$$(rx^r + ax + b)(cx^r + dx + e) = 9x^r - vx^r - rx - r$$

$$rcx^{2r} + (rd+ac)x^{r+1} + (re+ad+bc)x^r + (ae+bd)x + be$$

$$be = -r$$

$$y = \sqrt{f(x) - f\left(\frac{r}{x}\right)} \quad x \neq 0 \quad f(x) = x^r + x$$

$$x^r + x > \left(\frac{r}{x}\right)^r + \frac{r}{x} \Rightarrow x^r + x > \frac{r^r}{x^r} + \frac{r}{x}$$

$$x^r + x > \frac{r^r + rx^{r+1}}{x^r} \Rightarrow x^r + x = \frac{r^r + rx^{r+1}}{x^r}$$

$$x^r + x^r = r + rx^r \Rightarrow x = r$$

$$-4r - r - 1 - 1 \Rightarrow 9r^r + r - 1 - 1 \Rightarrow 0$$

$$Df = [-r, 0) \cup (r, +\infty)$$

$$-r \quad 0 \quad r$$

$$f(x^r + x) = rx^r - 1$$

$$\left. \begin{array}{l} x=r \rightarrow f(10) = V \\ x=1 \rightarrow f(r) = 1 \end{array} \right\} f(x) \neq f(10) \quad (1)$$

Arman

(10) دامنه مشتق  $f$  و  $g$  : 1 و 3 و -1

الف)  $f(x) : \left( \left( \frac{1}{x}, 2 \right) \left( \frac{x}{x}, -1 \right) (2, 2) \left( -\frac{1}{x}, 6 \right) \right)$

$$2x = 1 \Rightarrow x = \frac{1}{2}$$

$$2x = 2 \Rightarrow x = 1$$

$$2x = 3 \Rightarrow x = \frac{3}{2}$$

$$2x = -1 \Rightarrow x = -\frac{1}{2}$$

ب)  $f(x^2) : \left( (1, 2) (-1, 2) (-\sqrt{2}, -1) (\sqrt{2}, -1) (2, 2) (-2, 2) \right)$

$$x^2 = 1 \Rightarrow x = \pm 1$$

$$x^2 = 2 \Rightarrow x = \pm \sqrt{2}$$

$$x^2 = 3 \Rightarrow x = \pm \sqrt{3}$$

$$x^2 = -1 \times$$

ج)  $2g'(x) + 1 : (-2, 19) (1, 3) (3, 9) (-1, 1)$

د)  $\frac{y}{g} = \left( (1, -4) \left( 3, -\frac{1}{2} \right) \right)$

$$\hookrightarrow g \neq 0 \Rightarrow x \neq -1$$