

الف) $x \neq 1$ $x > 1$ یا $x < 0$ 1

1/50

$$x > 1$$

ب) روش جد کردن طرف

1/50

$$\frac{1-2x}{x(x-1)} > 0$$

$$\frac{0 \quad \frac{1}{2} \quad 1}{+ \quad \frac{1}{2} - 0 \quad + \quad 1 -}$$

$$D_f = (-\infty \quad 0) \cup$$

$$[\frac{1}{2} + \infty) = \{1\}$$

ب) $x \neq -1, 0, 1, -2$ فقط دایره های (اد) نامتناهی است

$$D_f = (-\infty, -2) \cup (-1, 0) \cup (1, \infty)$$

$$\frac{3}{x-1} + \frac{1}{x+2} \neq 0 \Rightarrow \frac{x+5}{(x+2)(x-1)} \Rightarrow x+5 \neq 0$$

$$x \neq -\frac{5}{1}$$

$$D_f = \mathbb{R} - \{-2, -\frac{5}{1}, 0, 1\}$$

الف) $x > 0$ یا $x < 2, 5 - 2$ 2

$$x-9 > 0 \Rightarrow x > 9$$

$$D_f = (-\infty - 9] \cup [9 + \infty)$$

ب) $x-1 > 0$ $x > 1$

$$\sqrt{y+1} = 10 - \sqrt{x-1}$$

$$10 - \sqrt{x-1} > 0 \quad \sqrt{x-1} < 10$$

$$x-1 < 101$$

$$x < 102$$

$$D_f = [1, 102]$$

$$x^p - x - p > 0 \quad (x - p)(x + 1) > 0 \quad \frac{-1 \quad p}{+ \quad - \quad - \quad +} \quad -p$$

$$x^p - 1 > 0 \quad x > 1 \quad x < -1$$

$$D_f = (-\infty -1) \cup (p + \infty)$$

(P)

$$p + ax - x^p > 0 \quad p + ax - x^p = 0$$

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

$$b = \frac{p}{p} \quad -p + \frac{p}{p} = a \quad a = -\frac{1}{p} \quad a + b = -\frac{1}{p} + \frac{p}{p}$$

(P) $\Rightarrow 1$

$$f(x) - x > 0 \quad f(x) = px - p$$

$$px - p - x > 0 \quad px - p > 0 \quad x > 1$$

$$f(x) = px + p \quad px + p - x > 0 \quad x + p > 0$$

$$\Rightarrow -p < x < 1 \quad D_f = [-p + \infty)$$

(P)

$$x = \frac{\sqrt{p}}{p} + 1 \quad f(x) = px^p - px$$

$$\Rightarrow p \left(\frac{\sqrt{p}}{p} + 1 \right)^p - p \left(\frac{\sqrt{p}}{p} + 1 \right)$$

$$f \left(\sin \frac{\pi}{p} + \cos \frac{\pi}{p} \right) \checkmark -\frac{1}{p} \quad (P)$$

$$\frac{a+1}{a-1} + 1 \quad \Rightarrow \quad \frac{2a}{2} = a \quad \checkmark$$

$$\frac{a+1}{a-1} - 1 \quad a \neq 1 \quad D_f = \mathbb{R} - \{1\}$$

$$f(g(a)) = (\sqrt{a^2-1})^2 - f\sqrt{a^2-1} \Rightarrow t = \sqrt{a^2-1} - 1$$

$$t^2 - ft = -ft^2 - ft + f = 0 \Rightarrow (t-2)^2 = 0$$

$$t = 2 \Rightarrow \sqrt{a^2-1} = 2 \Rightarrow a^2-1 = 4$$

$$a^2 = 5 \quad a = \pm\sqrt{5}$$

$$\begin{aligned} n = -4 &\Rightarrow f(-4) = 24 + 3 + 4 = 31 \\ n = 1 &\Rightarrow f(1) = 1 - 5 + 4 = 0 \end{aligned}$$

$$f(n) \times f(-n) = 0 \times 31 = 0$$

$$\cos x = t \quad f(t^2 + \Delta t) = \frac{3}{5}$$

$$2t^2 + 2\Delta t - 3 = 0 \quad \text{در صورت سوال گفته شده ۳/۵}$$

$$t = \frac{-2\Delta \pm \sqrt{14\Delta}}{2}$$

$$-1 \leq \cos x \leq 1$$

$$\frac{-2\Delta + \sqrt{14\Delta}}{2} \quad \checkmark$$

$$\frac{-2\Delta - \sqrt{14\Delta}}{2} \quad \times$$

$$f\left(\frac{3}{5}\right) = 1 - \frac{(-2\Delta + \sqrt{14\Delta})^2}{4} \Rightarrow \frac{1149 + 50\sqrt{14\Delta}}{100}$$

$$\text{الف-1)} \quad \frac{x-1}{x} - \frac{x}{x-1} \geq 0 \rightarrow \frac{(x-1)^{\cancel{r}} - x^{\cancel{r}}}{x(x-1)} \geq 0 \rightarrow \frac{-x+1}{x(x-1)} \geq 0$$

$x^r - x^{n+1} - x^r$

$$\begin{array}{c} \cdot \\ + \end{array} \begin{array}{c} \cdot \\ - \end{array} \begin{array}{c} \cdot \\ + \end{array} \begin{array}{c} \cdot \\ - \end{array} \quad \rightarrow \quad D_f = (-\infty, 0) \cup \left[\frac{1}{r}, 1\right)$$

$$f(x \cos n + \Delta \sin n) = f(r, \theta) \rightarrow x \cos n + \Delta \sin n = r, \Delta \rightarrow x \cos n + \Delta \sin n - \frac{r}{r} = 0 \quad -1$$

$$\cos n = \frac{-\Delta \pm \sqrt{\Delta^2 + \Delta^4}}{\Delta} \rightarrow \cos n = \frac{-\Delta + 9}{\Delta} = \frac{1}{r}$$

$$\hookrightarrow \cos n = \frac{-\Delta - 9}{\Delta} = -\frac{r}{\Delta} \times \cos n = -$$

$$\text{نموذج:} \quad \cos \frac{\pi}{r} = \frac{1}{r}, \quad \cos \frac{\Delta \pi}{r} = \frac{1}{r} \rightarrow f(r, \theta) = r$$

$\downarrow$ $\downarrow$
 $\cos n = (\sqrt{r})^r = r \quad \cos n = (-\sqrt{r})^r = r$