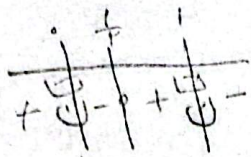


آرایشی یازدهم فصل A (بیمار خدای) ۲۰ آفرین عالی دوست یک کف و تابع

$$\text{الف)} \frac{x-1}{x} - \frac{x}{x-1} \geq 0 \rightarrow \frac{(x-1)^2 - x^2}{x(x-1)} = \frac{x^2 - 2x + 1 - x^2}{x^2 - x} = \frac{-2x + 1}{x^2 - x} \geq 0 \quad (1)$$

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



$$D_f = (-\infty, 0) \cup \left[\frac{1}{2}, +\infty\right)$$

ب) $x+1 \neq 0 \Rightarrow x \neq -1$ $x \neq 0$ $x-1 \neq 0 \Rightarrow x \neq 1$ $x+2 \neq 0 \Rightarrow x \neq -2$ $\frac{x}{x-1} + \frac{1}{x+2} \neq 0$

$$x \neq \frac{-2}{x} \quad \leftarrow \neq \frac{3x+4+x-1}{x^2+x-2} = \frac{4x+3}{x^2+x-2}$$

$$D_f = \mathbb{R} - \left\{-1, \frac{-2}{x}, -2\right\}$$

$$\text{الف)} \left[\left(\frac{1}{x}\right)^x - 9\right](32 - x^x) \geq 0$$

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

x	$\frac{1}{x^x} - 9$	$32 - x^x$	$f(x)$
$-\infty$	+	-	-
$-\sqrt{2}$	+	+	+
$-\frac{2}{x}$	+	-	-
$-\frac{2}{x}$	+	+	+
$-\infty$	+	-	-

$$D_f = (-\infty, -\sqrt{2}) \cup \left[\frac{2}{x}, +\infty\right)$$

$$\text{ب)} (\sqrt{y-1} = 3 - \sqrt{x-1})^2$$

$$x-1 \geq 0 \rightarrow x \geq 1$$

$$3 - \sqrt{x-1} \geq 0 \rightarrow \sqrt{x-1} \leq 3 \rightarrow x-1 \leq 9 \rightarrow x \leq 10$$

$$x^2 - x - 2 \geq 0 \rightarrow (x-2)(x+1) \geq 0$$

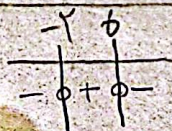
$$x^2 - 1 \geq 0 \rightarrow x \geq 1 \text{ or } x \leq -1$$

$$x < -1 \text{ or } x > 2$$

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



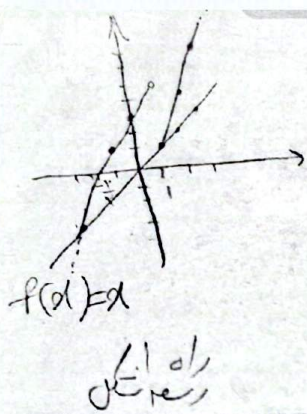
$$\sqrt{-x^2 + ax + 3}$$



$$a+b = \frac{1}{p} + \frac{3}{p} = 1$$

$$\left(\frac{a}{b}\right)p = -3 = -2b \rightarrow b = \frac{3}{2}$$

$$\left(\frac{b}{a}\right)s = +a = \frac{3}{p} + (-4) = \frac{1}{p}$$



$$\begin{array}{c|cc} x & 1 & 2 \\ \hline y & 1 & 4 \end{array}$$

$$\begin{array}{c|ccc} x & \frac{1}{2} & 1 & 2 \\ \hline y & 0 & 1 & 4 \end{array}$$

$$2x + y = 0$$

$$x = 2$$

$$f(x) = x \Rightarrow \begin{cases} 1 - x > x \\ x > 1 \end{cases} \quad \text{①}$$

$$f(x) = x \Rightarrow \begin{cases} x > 1 \\ x > 1 \end{cases} \quad \text{②}$$

$$D_f = [-2, +\infty) \Rightarrow \begin{cases} x + y > x \\ x > -y \end{cases} \quad \text{③}$$

$$f(x) = 2\left(\frac{\sqrt{3}+1}{2}\right)^2 - 2\left(\frac{\sqrt{3}+1}{2}\right) = \frac{2(\sqrt{3}+1)^2}{4} - \frac{2(\sqrt{3}+1)}{2}$$

$$\sin \frac{x}{\sqrt{3}} + \cos x = \frac{\sqrt{3}+1}{2}$$

$$(x) \text{ مع } \frac{\sqrt{3}+1}{2}$$

$$2\left(\frac{\sqrt{3}+1}{2}\right) - \frac{\sqrt{3}+1}{2} = \frac{1}{2}$$

$$f(a) = \frac{a+1}{a-1}$$

$$f\left(\frac{a+1}{a-1}\right) = \frac{\frac{a+1}{a-1} + 1}{\frac{a+1}{a-1} - 1} = \frac{\frac{a+1+a-1}{a-1}}{\frac{a+1-a+1}{a-1}} = \frac{2a}{2} = a$$

$$D_f = \{a \mid a \in \mathbb{Z}, a \neq 1\}$$

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

$$f(\sqrt{a^2-1}) = \frac{(\sqrt{a^2-1})^2}{a^2-1} - \sqrt{a^2-1} = -\sqrt{a^2-1}$$

$$\rightarrow (-\sqrt{a^2-1}) = \frac{-a^2 + 1}{-a^2 - 1} \rightarrow \frac{1 - a^2}{1 + a^2} = a^2 - 1$$

$$\rightarrow a^2 - 1 - a^2 + 1 = 0 \rightarrow (a^2 - 1) = 0 \rightarrow a = \pm 1$$

$$f(-3) = (x-3)(x-2) = (-4-3)(-4-2) = -9(-6) = 54$$

$$x + y = -3$$

$$x = -4$$

$$f(-3) + f(3) = 18$$

$$f(3) = (x-3)(x-2) = (1-3)(1-2) = -2(-1) = 2$$

$$x + y = 3$$

$$x = 1$$

$$x \cos x + y \cos x = 0 \rightarrow \frac{x \cos x + y \cos x}{x} = 0$$

$$\cos x + y \cos x - 1 = 0$$

$$(x \cos x + y \cos x) \rightarrow \cos x = \frac{1}{x} \rightarrow x = \frac{1}{\cos x} \rightarrow \tan x = 1$$