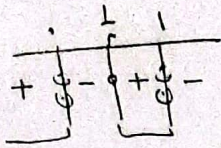


الف) $f(x) = \sqrt{\frac{x-1}{x} - \frac{x}{x-1}} \geq 0 \rightarrow \frac{x-1}{x} - \frac{x}{x-1} \geq 0 \rightarrow \frac{(x-1)^2 - x^2}{x(x-1)} \geq 0 \rightarrow \frac{x^2 - 2x + 1 - x^2}{x(x-1)} \geq 0$

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

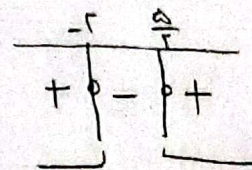


$D_f = (-\infty, 0) \cup [\frac{1}{2}, 1)$ جواب

ب) $f(x) = \frac{1}{x+1} - \frac{1}{x} \neq 0 \rightarrow \frac{x - (x+1)}{x(x+1)} \neq 0 \rightarrow \frac{-1}{x(x+1)} \neq 0$

$D_f = \mathbb{R} - \{-1, 0\}$ جواب

الف) $f(x) = \sqrt{((\frac{1}{x})^2 - 9)(32 - x^2)} \geq 0 \rightarrow ((\frac{1}{x})^2 - 9)(32 - x^2) \geq 0$



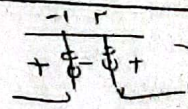
$D_f = (-\infty, -\sqrt{32}] \cup [\frac{1}{3}, \sqrt{32})$ جواب

ب) $\sqrt{x-1} + \sqrt{y+1} = 3 \rightarrow \sqrt{y+1} = 3 - \sqrt{x-1} \rightarrow y+1 = 9 - 6\sqrt{x-1} + x - 1 \rightarrow y = x - 6\sqrt{x-1} + 9$

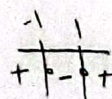
$D_f = [1, 17]$ جواب

$f(x) = \frac{\log_2(x^2 - x - 2)}{\sqrt{x^2 - 1} + 1} \geq 0$

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



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



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

$f(x) = \sqrt{3+4x-x^2} \geq 0 \rightarrow D_f = [-1, 3]$

$x-2 \rightarrow 2x^2 + x - 6 \leq 0 \rightarrow x^2 + x - 12 \leq 0 \rightarrow (x+4)(x-3) \leq 0$

$b = 1/5, a+b = -3/5 + 1/5 = -2/5$ جواب

$D_f = [-1, 3]$

$f(x) = \begin{cases} 3x-5 & x \geq 1 \\ 2x+2 & x < 1 \end{cases} \quad g(x) = \sqrt{f(x) - x} \geq 0 \rightarrow \sqrt{3x-5-x} \geq 0 \rightarrow \sqrt{2x-5} \geq 0$

$2x-5 \geq 0 \rightarrow x \geq 2.5 \rightarrow x \geq 1 \rightarrow x \geq 2.5$

$[1, +\infty) \cup [2.5, +\infty) = [2.5, +\infty)$ جواب

$f(x) = 2x^2 - 4x$

$f(\sin \frac{\pi}{4} + \cos 2\pi)$

$\sin \frac{\pi}{4} + \cos 2\pi = 1 + \frac{\sqrt{2}}{2}$

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

$\rightarrow \frac{2(1+\frac{\sqrt{2}}{2})(1+\frac{\sqrt{2}}{2}-2)}{2+\sqrt{2}} = \frac{2-4}{2} = -1$ جواب

گلاس : یازدهم ریاضی

پایه نهم ریاضی : آ

نیمه اول : آ

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

$$f(f(x)) = x$$

$$f(1) = \frac{1+1}{1-1} \neq 0 \rightarrow f(f(1)) = 1$$

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

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

$$a+1 = (a-1)(a-1)$$

$$a+1 = a^2 - 2a + 1$$

$$a^2 - 3a = 0$$

$$a(a-3) = 0$$

$$a = 0 \text{ or } a = 3$$

$$a \in \mathbb{R} - \{1\}$$

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$$\frac{a+1}{a-1} = a \rightarrow \frac{a+1}{a-1} = a$$

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

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

$$f(g(x)) = -x^2$$

$$\rightarrow f(x) = -x^2$$

$$-x = x^2 - 1 \rightarrow x^2 - 1 - x = 0 \rightarrow (x-1)^2 = 0 \rightarrow x = 1$$

$$x = 1 \rightarrow x^2 - 1 = 0 \rightarrow x = 1$$

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

$$x^2 - 1 = 4 \rightarrow x^2 = 5 \rightarrow x = \pm \sqrt{5}$$

$$x = \pm \sqrt{5}$$

$$a^2 - 1 = 0 \rightarrow a = \pm 1$$

$$a = \pm 1$$

$$a = \pm 1$$

$$a = \pm 1$$

$$a = \pm 1$$

$$f(x+1) = x^2 - 1$$

$$f(-1) = f(f(1)) = ?$$

$$\rightarrow f(1) = 1 - 1 = 0 \rightarrow f(0) = 1$$

$$\rightarrow f(1) = 1 - 1 = 0$$

$$\rightarrow f(1) = 1 - 1 = 0$$

$$f(-x) = x^2 + 1$$

$$f(-x) = x^2$$

$$f(-x) = x^2$$

$$f(-x) = x^2$$

$$f(-x) = x^2$$

$$f(x \cos x + \sin x) = \tan x$$

$$f(x \cos x + \sin x) = \tan x$$

$$f(x \cos x + \sin x) = \tan x$$

$$f(x \cos x + \sin x) = \tan x$$

$$f(x \cos x + \sin x) = \tan x$$

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

$$x = -1 \text{ or } x = 1$$

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