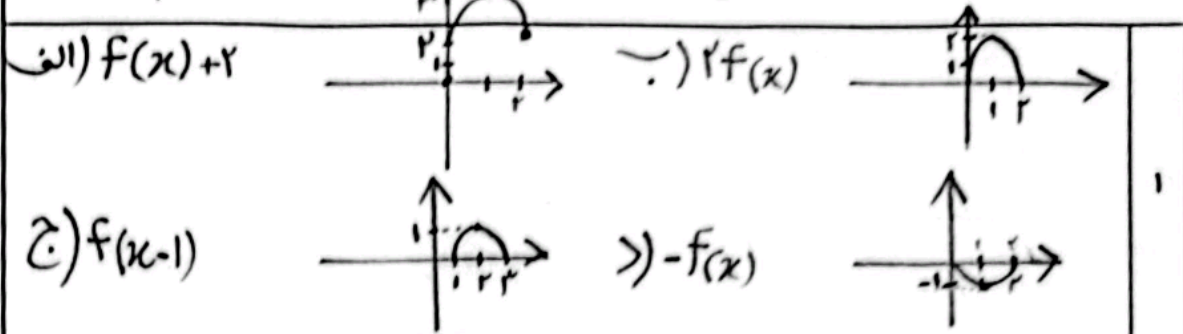


نام و نام خانوادگی: شماره: کلاس: درس:
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الف) $\frac{x^2 - 5x + 4}{(x-2)(x-1)} > 0$ $\left\{ \begin{array}{c} + \quad - \quad + \\ \phi \quad - \quad \phi \end{array} \right\} (-\infty, 2) \cup (3, +\infty)$

ب) $\frac{x^2 - 7x + 5}{(x-5)(x-1)} < 0$ $\left\{ \begin{array}{c} + \quad - \quad + \\ \phi \quad - \quad \phi \end{array} \right\} (1, 5)$ $\frac{x^2 - 7x + 5}{(x-5)(x-1)} \leq 0$ $[1, 5]$

ج) $\frac{x^2 + 7x + 5}{(x+1)(x+5)} \geq 0$ $\left\{ \begin{array}{c} - \quad + \quad - \\ \phi \quad - \quad \phi \end{array} \right\} (-\infty, -5] \cup [-1, +\infty)$

الف) $\frac{x^2 - 3x + 1}{x-5} < 0$ $\left\{ \begin{array}{c} + \quad - \quad + \\ \phi \quad - \quad \phi \end{array} \right\} (-\infty, 1) \cup (2, 5)$

ب) $\frac{x^2 - 4x + 5}{(x-5)(x-1)} \geq 0$ $\left\{ \begin{array}{c} - \quad + \quad - \\ \phi \quad - \quad \phi \end{array} \right\} (-\infty, -1] \cup (5, +\infty)$

الف) $\sqrt{\frac{x^2 - 1}{x^2 - x}} \geq x - 1$ $\left\{ \begin{array}{c} + \quad - \quad + \\ \phi \quad - \quad \phi \end{array} \right\} D_f = (-\infty, -1) \cup (0, 1) \cup (1, +\infty)$

ب) $\sqrt{\frac{x^2 - 1}{x^2 - 2x + 1}} \geq x - 1$ $\left\{ \begin{array}{c} - \quad + \quad - \\ \phi \quad - \quad \phi \end{array} \right\} D_f = (-\infty, -1] \cup (1, 1) \cup (1, +\infty)$

الف) $\sqrt{4 - \sqrt{2-x}}$ $\left\{ \begin{array}{l} 2-x \geq 0 \Rightarrow x \leq 2 \\ 4 - \sqrt{2-x} \geq 0 \Rightarrow 4 \geq \sqrt{2-x} \Rightarrow 16 \geq 2-x \Rightarrow x \geq -14 \end{array} \right\} D_f = [-14, 2]$

ب) $\sqrt{3 - \sqrt{x-2}}$ $\left\{ \begin{array}{l} x-2 \geq 0 \Rightarrow x \geq 2 \\ 3 - \sqrt{x-2} \geq 0 \Rightarrow 3 \geq \sqrt{x-2} \Rightarrow 9 \geq x-2 \Rightarrow x \leq 11 \end{array} \right\} D_f = [2, 11]$

$$\left. \begin{aligned} &-\sqrt{2} \leq x \leq \sqrt{2} \\ &x^2 \leq 2 \end{aligned} \right\} D_f = [-\sqrt{2}, \sqrt{2}]$$

$y = \frac{\sin x + 1}{\sin x - 1} \Rightarrow \left\{ \begin{aligned} &\sin x \neq 1 \\ &\sin x \neq -1 \end{aligned} \right\} D_f = \mathbb{R} - \left\{ k\pi + \frac{\pi}{2}, k\pi + \frac{3\pi}{2} \right\}$

الف) $y = \sqrt{4 - 2x^2}$ $\left\{ \begin{aligned} &0 \leq 4 - 2x^2 \\ &x^2 \leq 2 \end{aligned} \right\}$

ب) $y = \sqrt{3|x| - 9}$ $\left\{ \begin{aligned} &3|x| - 9 \geq 0 \\ &|x| \geq 3 \end{aligned} \right\} \rightarrow \left\{ \begin{aligned} &x \geq 3 \\ &x \leq -3 \end{aligned} \right\} D_f = (-\infty, -3] \cup [3, +\infty)$

الف) $y = \sqrt[3]{\frac{|x|+1}{|x|-3}}$ $\left\{ \begin{aligned} &|x|-3 \neq 0 \\ &|x| \neq 3 \end{aligned} \right\} D_f = \mathbb{R} - \{-3, 3\}$

ب) $y = \sqrt{\frac{\sqrt{x}+1}{\sqrt{x}-3}}$ $\left\{ \begin{aligned} &x \geq 0 \\ &\sqrt{x}-3 \neq 0 \\ &\sqrt{x} \neq 9 \end{aligned} \right\} D_f = [0, +\infty) - \{9\}$

الف) $y = \frac{\sin x}{2\cos x - 1}$ $\left\{ \begin{aligned} &\cos x \neq \frac{1}{2} \\ &2\cos x - 1 \neq 0 \end{aligned} \right\} D_f = \mathbb{R} - \left\{ 2k\pi + \frac{\pi}{3}, 2k\pi + \frac{2\pi}{3} \right\}$

ب) $y = \frac{\cos x + 1}{2\sin x + 1}$ $\left\{ \begin{aligned} &\sin x \neq -\frac{1}{2} \\ &2\sin x + 1 \neq 0 \end{aligned} \right\} D_f = \mathbb{R} - \left\{ k\pi + \frac{7\pi}{6}, k\pi + \frac{5\pi}{6} \right\}$

ج) $y = \frac{\tan x + 1}{\cot x - 1} = \frac{\frac{\sin x}{\cos x} + 1}{\frac{\cos x}{\sin x} - 1}$ $\left\{ \begin{aligned} &\cos x \neq 0 \\ &\sin x \neq 0 \\ &\frac{\cos x}{\sin x} - 1 \neq 0 \end{aligned} \right\} D_f = \mathbb{R} - \left\{ k\pi, k\pi + \frac{\pi}{2}, k\pi + \frac{3\pi}{4}, k\pi + \frac{5\pi}{4} \right\}$

$y = \frac{1}{\sqrt{2|x-1| - \frac{1}{2}}}$ $\Rightarrow \left\{ \begin{aligned} &2|x-1| - \frac{1}{2} > 0 \\ &2|x-1| > \frac{1}{2} \\ &|x-1| > \frac{1}{4} \end{aligned} \right\} \rightarrow \left\{ \begin{aligned} &x-1 > \frac{1}{4} \\ &x-1 < -\frac{1}{4} \end{aligned} \right\} D_f = (-\infty, \frac{3}{4}) \cup (\frac{5}{4}, +\infty)$

الف) $y = \sqrt{4 - 2|x|}$ $\left\{ \begin{aligned} &4 - 2|x| \geq 0 \\ &4 \geq 2|x| \\ &|x| \leq 2 \end{aligned} \right\} D_f = [-2, 2]$

ب) $y = \sqrt{\frac{|x|}{|x|+1}}$ $\left\{ \begin{aligned} &|x| \neq 0 \\ &\frac{|x|}{|x|+1} \geq 0 \end{aligned} \right\} D_f = \mathbb{R} - \{0\}$

$$D_f = \mathbb{R} - \{0\}$$