

الف) $\frac{(x-1)(x-2)}{(x-1)(x^2+x+1)} > 0 \Rightarrow \frac{1}{x-1} - \frac{2}{x^2+x+1} > 0 \Rightarrow [2, +\infty)$

ب) $\sqrt{\frac{(x-1)(x-2)}{(x-1)(x+1)}} \Rightarrow Df = \mathbb{R} - \{-1, 1\}$

الف) $x^2 - 2x > 0 \Rightarrow x(x-2) > 0 \Rightarrow \frac{0}{x-2} - \frac{2}{x} > 0 \Rightarrow (-\infty, 0) \cup (2, +\infty)$

ب) $14x^2 > 0 \Rightarrow 14 > x^2 \Rightarrow \pm 2 > x^*$
 $|x| > 2 \Rightarrow |x| > 2 \Rightarrow x < -2 \text{ or } x > 2 \Rightarrow (-\infty, -2) \cup (2, +\infty) - \{-2, 2\}$

ج) $\frac{(x-2)(x-1)}{x-2} > 0 \Rightarrow \frac{10-x}{10-x-1} > 0 \Rightarrow (2, 10) - \{9\}$

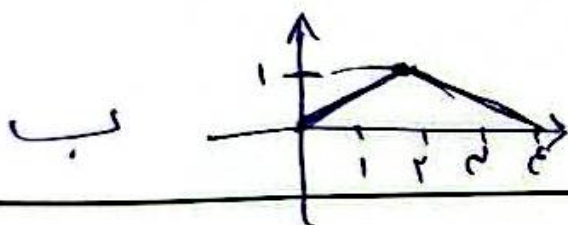
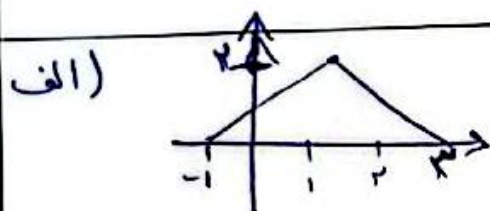
د) $(x-2)(x-1) > 0 \Rightarrow x^2 - 3x + 2 > 0 \Rightarrow x < 1 \text{ or } x > 2 \Rightarrow (-\infty, 1) \cup (2, +\infty)$

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

$\frac{-1}{x-1} - \frac{0}{x} - \frac{1}{x+1} > 0$

	-1	0	1
x^2-x	+	+	-
x^2+x	+	-	+

هـ) $y = \sqrt{\frac{x-f(x)}{f(x)}} \Rightarrow Df = (-\infty, -2) \cup (2, +\infty) \cup \{-1\}$



از آنجایی که جمع فرایب منفر و ~~مجموع فرایب توان~~ $D_f = \mathbb{R} - \{1, 1.5, 2, 5\}$

مجموع فرایب توان (ب) $\Rightarrow D_f = \mathbb{R} - \{-1, \frac{1}{2}, 2\}$
 هیچ برابر توان فراد

الف) $\frac{x+1}{x-\sqrt{2-x}} \Rightarrow x-\sqrt{2-x} \neq 0 \Rightarrow x \neq \sqrt{2-x} \Rightarrow x^2 \neq 2-x \Rightarrow x^2+x-2 \neq 0 \Rightarrow (x+2)(x-1) \neq 0 \Rightarrow D_f = \mathbb{R} - \{-2, 1\}$

ب) $x-\sqrt{2-x} \Rightarrow x \neq \sqrt{2-x} \Rightarrow x^2 \neq 2-x \Rightarrow x^2-x-2 \neq 0 \Rightarrow (x-2)(x+1) \neq 0 \Rightarrow D_f = \mathbb{R} - \{2, -1\}$

الف) $y = \frac{\sin x}{\sqrt{\cos x - 1}}$ $\cos x \neq 1$ $\cos x \neq \frac{1}{2}$ $D_f = \mathbb{R} - \{2k\pi + \frac{\pi}{3}, 2k\pi + \frac{5\pi}{3}\}$	ب) $y = \frac{\cos x + 1}{\sqrt{\sin x + 1}}$ $\sin x \neq -1$ $\sin x \neq -\frac{1}{2}$ $D_f = \mathbb{R} - \{2k\pi + \frac{3\pi}{2}, 2k\pi + \frac{7\pi}{6}, 2k\pi + \frac{5\pi}{6}\}$	ج) $y = \frac{\tan x + 2}{\cos x - 1}$ $\cos x \neq 1$ $\cos x \neq \frac{1}{2}$ $D_f = \mathbb{R} - \{2k\pi, 2k\pi + \frac{\pi}{3}\}$	د) $y = \frac{\sin x + 1}{\sqrt{\sin^2 x - 2}}$ $\sin^2 x \neq 2$ $\sin^2 x \neq \frac{2}{5}$ $\sin x \neq \pm \frac{\sqrt{2}}{\sqrt{5}}$ $D_f = \mathbb{R} - \{k\pi + \frac{\pi}{5}, k\pi + \frac{4\pi}{5}\}$
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الف) $(x-2)(x-5) > 0 \Rightarrow \frac{1}{x-2} - \frac{1}{x-5} > 0 \Rightarrow (-\infty, 2) \cup (5, +\infty)$

ب) $(x-1)(x-5) < 0 \Rightarrow \frac{1}{x-1} - \frac{1}{x-5} < 0 \Rightarrow (1, 5)$

ج) $(x+1)(x+5) > 0 \Rightarrow \frac{-5}{x+1} - \frac{-1}{x+5} > 0 \Rightarrow (-\infty, -5] \cup [-1, +\infty)$

د) $(x-1)(x-4) < 0 \Rightarrow \frac{1}{x-1} - \frac{1}{x-4} < 0 \Rightarrow [1, 4]$

الف) $\frac{(x-1)(x-2)}{x-5} < 0 \Rightarrow \frac{1}{x-1} - \frac{2}{x-5} < 0 \Rightarrow (-\infty, -1) \cup (2, 5)$

ب) $\frac{(x-1)(x+1)}{(x-1)(x-5)} > 0 \Rightarrow \frac{-1}{x-1} - \frac{1}{x-5} > 0 \Rightarrow (-\infty, -1] \cup (5, +\infty)$