

از آنجایی که جمع فرایب منفی و ...
الف) ~~$D_f = \mathbb{R} - \{1, 1.5, 2, 5\}$~~

مجموع فرایب توان (ب)
یعنی برابر اول فرد $\Rightarrow D_f = \mathbb{R} - \{-1, \frac{2}{3}, 2\}$

الف) $\frac{x+1}{x-\sqrt{x-2}} \Rightarrow x-\sqrt{x-2} \neq 0 \Rightarrow x \neq \sqrt{x-2} \Rightarrow x^2 \neq x-2$

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

ب) $x - \sqrt{x-2} \Rightarrow x \neq \sqrt{x-2} \Rightarrow x^2 \neq x-2 \Rightarrow x^2 - x + 2 \neq 0$

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

الف) $y = \frac{\sin x}{\sqrt{\cos x - 1}}$

$\sqrt{\cos x} \neq 1$

$\cos x \neq \frac{1}{4}$

$D_f = \mathbb{R} - \{2k\pi + \frac{\pi}{3}, 2k\pi + \frac{5\pi}{3}\}$

ب) $\frac{\cos x + 1}{\sqrt{\sin x + 1}}$

$\sqrt{\sin x} \neq -1$

$\sin x \neq -\frac{1}{4}$

$D_f = \mathbb{R} - \{2k\pi + \frac{3\pi}{2}, 2k\pi + \frac{7\pi}{2}\}$

ج) $\frac{\tan x + 2}{\cos x - 1}$

$\cos x \neq 1$

$\frac{\cos x}{\sin x} \neq 1$

$D_f = \mathbb{R} - \{k\pi, k\pi + \pi\}$

د) $y = \frac{\sin x + 1}{\sqrt{\sin x - 2}}$

$\sqrt{\sin x} \neq 2$

$\sin x \neq \frac{4}{5}$

$D_f = \mathbb{R} - \{k\pi + \frac{\pi}{2}, k\pi + \frac{3\pi}{2}\}$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

