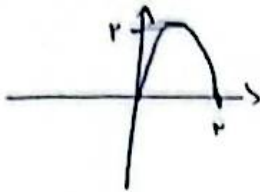
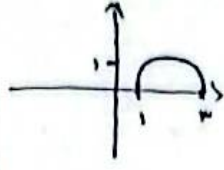
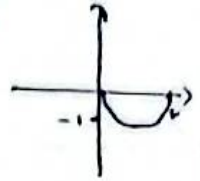


الف) $f(x) = x^2 - 1$ 	ب) $f(x)$ 	ج) $f(x-1)$ 	د) $-f(x)$ 	1
الف) $x^2 - 5x + 4 > 0$ $(x-1)(x-4) > 0$ $\frac{x}{+} \frac{1}{-} \frac{4}{-}$ $(-\infty, 1) \cup (4, \infty)$	ب) $x^2 - 4x + 5 < 0$ $(x-2)(x-1) < 0$ $\frac{x}{+} \frac{1}{-} \frac{2}{+}$ $(1, 2)$	ج) $x^2 + 4x + 5 > 0$ $(x+1)(x+5) > 0$ $\frac{x}{+} \frac{-1}{-} \frac{-5}{+}$ $(-\infty, -5] \cup [-1, \infty)$	د) $x^2 - 6x + 4 < 0$ $(x-1)(x-4) < 0$ $\frac{x}{+} \frac{1}{-} \frac{4}{+}$ $[1, 4]$	2
الف) $\frac{x^2 - 3x + 2}{(x-5)} < 0$ $\frac{(x-1)(x-2)}{(x-5)} < 0$ $\frac{x}{-} \frac{1}{+} \frac{2}{-} \frac{5}{+}$	$(-\infty, 1) \cup (2, 5)$	ب) $\frac{x^2 - 1}{x^2 - 4x + 5} > 0$ $\frac{(x+1)(x-1)}{(x-5)(x-1)} > 0$ $\frac{x}{+} \frac{-1}{-} \frac{1}{-} \frac{5}{+}$	$(-\infty, -1] \cup (5, \infty)$	3
الف) $y = \sqrt{\frac{x^3 - 1}{x^2 - x}} > 0$ $x^3 - 1 = (x-1)(x^2 + x + 1)$ $x^2 - x = x(x-1)$ $x(x-1) > 0 \Rightarrow x < 0 \vee x > 1$	$\frac{-1}{+} \frac{0}{-} \frac{1}{+}$ $D_f = (-\infty, -1) \cup (0, 1) \cup (1, \infty)$	ب) $y = \sqrt{\frac{x^2 - 14}{x^2 - 4x + 4}} > 0$ $\frac{(x-4)(x+4)}{(x-2)(x-2)} > 0$ $\frac{x}{+} \frac{-4}{-} \frac{4}{+} \frac{2}{-}$	$D_f = (-\infty, -4] \cup (2, \infty) - \{2\}$	4
الف) $\sqrt{4-x} - \sqrt{2-x} > 0$ $\sqrt{4-x} > \sqrt{2-x} \Rightarrow 4-x > 2-x \Rightarrow x < 2$ $\sqrt{4-x} > 0 \Rightarrow 4-x \geq 0 \Rightarrow x \leq 4$ $D_f = [-1, 2]$	5			
ب) $\sqrt{3-x} - \sqrt{x-2} > 0$ $\sqrt{3-x} > \sqrt{x-2} \Rightarrow 3-x > x-2 \Rightarrow x < 2.5$ $\sqrt{3-x} > 0 \Rightarrow 3-x \geq 0 \Rightarrow x \leq 3$ $\sqrt{x-2} > 0 \Rightarrow x-2 \geq 0 \Rightarrow x \geq 2$ $D_f = [2, 2.5]$				

$\text{ا) } y = \sqrt{r - r \ln r}$ $r - r \ln r \geq 0$ $r \ln r \leq r \rightarrow \ln r \leq 1 \rightarrow -1 \leq \ln r \leq 1$ $D_f = [-\sqrt{e}, \sqrt{e}]$	
$\text{ب) } y = \sqrt{r \ln - 9}$ $r \ln - 9 \geq 0$ $r \ln \geq 9$ $ \ln \geq \frac{9}{r}$ $\ln \geq \frac{9}{r}$ $\ln \leq -\frac{9}{r}$ $D_f = [\frac{9}{r}, \infty) \cup (-\infty, -\frac{9}{r}]$	6
$\text{ا) } y = \sqrt{\frac{\ln + 1}{ \ln - r}}$ $ \ln - r \neq 0$ $ \ln \neq r$ $ \ln \neq \pm r$ $D_f = \mathbb{R} - \{\pm r\}$	7
$\text{ب) } y = \sqrt{\frac{\sqrt{x} + 1}{\sqrt{x} - r}}$ $x \geq 0$ $\sqrt{x} - r \neq 0$ $\sqrt{x} \neq r \rightarrow x \neq r^2$ $D_f = [0, \infty) - \{r^2\}$	8
$\text{ا) } y = \frac{\sin x}{r \cos x - 1}$ $r \cos x - 1 \neq 0$ $r \cos x \neq 1$ $\cos x \neq \frac{1}{r}$ $\mathbb{R} - \{k\pi + \frac{\pi}{r}, k\pi - \frac{\pi}{r}\}$	9
$\text{ب) } y = \frac{\cos x + 1}{r \sin x + 1}$ $r \sin x + 1 \neq 0$ $r \sin x \neq -1$ $\sin x \neq -\frac{1}{r}$ $\mathbb{R} - \{k\pi + \pi + \frac{\pi}{r}, k\pi - \frac{\pi}{r}\}$	
$\text{ج) } \frac{\tan x + r}{\tan x - 1}$ $\cot x - 1 \neq 0$ $\cot x \neq 1$ $\mathbb{R} - \{k\pi + \frac{\pi}{r}\}$	
$\text{د) } y = \frac{\sin x + 1}{r \sin x - r}$ $r \sin x - r \neq 0$ $r \sin x \neq r$ $\sin x \neq 1$ $ \sin x \neq \frac{r}{r} \rightarrow \sin x = \pm \frac{\sqrt{r}}{r}$ $\mathbb{R} - \{k\pi \pm \frac{\pi}{r}\}$	
$y = \frac{1}{\sqrt{r \ln - r + \frac{1}{r}}}$ $r \ln - r + \frac{1}{r} > 0$ $r \ln - r > -\frac{1}{r}$ $\ln - r > -\frac{1}{r^2}$ $\ln - r > \frac{1}{r^2}$ $\ln > r + \frac{1}{r^2}$ $D_f = (-\infty, \frac{1}{r^2}) \cup (\frac{1}{r^2}, \infty)$	10
$\text{ا) } y = \sqrt{r - r \ln }$ $r - r \ln \geq 0$ $r \ln \leq r$ $ \ln \leq 1$ $-1 \leq \ln \leq 1$ $D_f = [-r, r]$	
$\text{ب) } y = \sqrt{\frac{\ln}{ \ln }}$ $x \neq 0$ $\frac{\ln}{ \ln } \geq 0$ $D_f = \mathbb{R} - \{0\}$	11