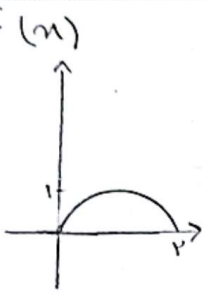
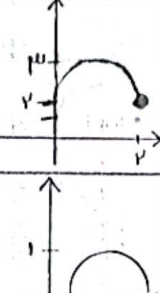
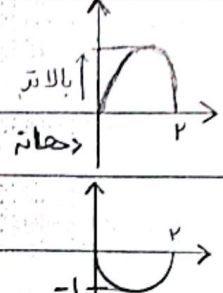
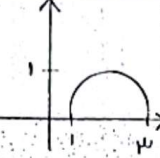
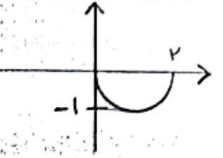
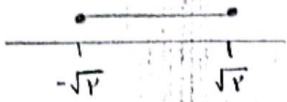
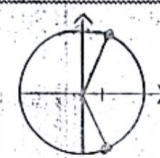
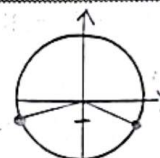
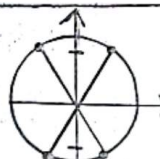
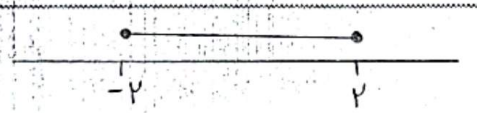


$f(x)$ 	$f(x) + 2$ واحد بالا. 	$2f(x)$ دو برابر شدن شکل نسبت به x. 	1
$f(x-1)$ واحد راست. 	$-f(x)$ 		2
$x^2 - 5x + 4 > 0$ $(x-1)(x-4) > 0$ $D_f = (-\infty, 1) \cup (4, +\infty)$	$x^2 - 4x + 5 < 0$ $(x-1)(x-5) < 0$ $D_f = (1, 5)$		3
$x^2 + 4x + 5 \geq 0$ $(x+1)(x+5) \geq 0$ $D_f = (-\infty, -5] \cup [-1, +\infty)$	$x^2 - 4x + 4 \leq 0$ $(x-1)(x-4) \leq 0$ $D_f = [1, 4]$		4
$\frac{x^2 - 3x + 2}{x - 5} < 0$ $\frac{(x-1)(x-2)}{x-5} < 0$ $D_f = (-\infty, 1) \cup (2, 5) \cup (5, +\infty)$	$\frac{x^2 - 1}{x^2 - 4x + 5} \geq 0$ $\frac{(x-1)(x+1)}{(x-1)(x-5)} \geq 0$ $D_f = (-\infty, -1] \cup (5, +\infty)$		5
$y = \sqrt{\frac{x^3 - 1}{x^3 - x}} \Rightarrow \frac{x^3 - 1}{x^3 - x} \geq 0$ $x^3 - 1 = 0 \Rightarrow x = 1$ $x^3 - x = 0 \Rightarrow x = 0, \pm 1$ $D_f = (-\infty, -1) \cup (0, +\infty) - \{1\}$	$y = \sqrt{\frac{x^2 - 16}{x^2 - 5x + 4}} \Rightarrow \frac{(x-4)(x+4)}{(x-1)(x-4)} \geq 0$ $\frac{x+4}{x-1} \geq 0$ $D_f = (-\infty, -4] \cup (1, +\infty) - \{4\}$		6
$y = \sqrt{4 - \sqrt{4 - x}} \Rightarrow D_f = [-12, 4]$ $4 - x \geq 0 \Rightarrow x \leq 4$ $4 - \sqrt{4 - x} \geq 0 \Rightarrow \sqrt{4 - x} \leq 4$ $4 - x \leq 16 \Rightarrow x \geq -12$	$y = \sqrt{4 - \sqrt{x - 2}} \Rightarrow D_f = [2, 11]$ $x - 2 \geq 0 \Rightarrow x \geq 2$ $4 - \sqrt{x - 2} \geq 0 \Rightarrow \sqrt{x - 2} \leq 4$ $x - 2 \leq 16 \Rightarrow x \leq 18$		7

$a) y = \sqrt{r - r^2}$ $r - r^2 \geq 0$ $r^2 \leq r$ $r \leq 1$ $-\sqrt{r} \leq r \leq \sqrt{r}$ 	$b) y = \sqrt{r r - 9}$ $r r - 9 \geq 0$ $r r \geq 9$ $ r \geq 3$ $\begin{cases} r \geq 3 \\ r \leq -3 \end{cases}$ $D_f = \{x x \in \mathbb{R}, x \geq 3 \cup x \leq -3\}$	8
$a) y = \sqrt{\frac{ x +1}{ x -r}}$ $ x -r \neq 0$ $ x \neq r$ $x \neq \pm r$	$D_f = \{x x \in \mathbb{R}, x \neq \pm r\}$	9
$b) y = \sqrt{\frac{\sqrt{x}+1}{\sqrt{x}-r}} \rightarrow x \geq 0$ $\sqrt{x}-r \neq 0 \rightarrow \sqrt{x} \neq r$ $\sqrt{x} \neq r \Rightarrow x \neq r^2$	$D_f = \{x x \in \mathbb{R}, [0, +\infty) - r^2\}$	10
$a) y = \frac{\sin x}{r \cos x - 1}$ $r \cos x - 1 \neq 0 \Rightarrow \cos x \neq \frac{1}{r}$ $D_f = \{rk\pi - \frac{\pi}{r}, rk\pi + \frac{\pi}{r}\}$ 	$b) y = \frac{\cos x + 1}{r \sin x + 1}$ $r \sin x + 1 \neq 0 \Rightarrow \sin x \neq -\frac{1}{r}$ $D_f = \{rk\pi - \frac{\pi}{r}, rk\pi + \frac{\pi}{r}\}$ 	11
$c) y = \frac{\tan x + r}{\cot x - 1}$ $\begin{cases} \cos x \neq 0 \\ \sin x \neq 0 \\ \cot x \neq 1 \end{cases}$ $D_f = \{k\pi, k\pi + \frac{\pi}{2}\}$ 	$d) y = \frac{\sin x + 1}{r \sin x - r}$ $r \sin x - r \neq 0 \Rightarrow \sin x \neq \pm \frac{1}{r}$ $D_f = \{k\pi - \frac{\pi}{r}, k\pi + \frac{\pi}{r}\}$ 	12
$y = \frac{1}{\sqrt{r x-r - \frac{1}{r}}}$ $r x-r - \frac{1}{r} > 0$ $r x-r > \frac{1}{r}$ $ x-r > \frac{1}{r^2}$ $\begin{cases} x-r > \frac{1}{r^2} \rightarrow x > \frac{1}{r^2} + r \\ x-r < -\frac{1}{r^2} \rightarrow x < \frac{1}{r^2} - r \end{cases}$	 $D_f = \{x x \in \mathbb{R}, x > \frac{1}{r^2} + r \cup x < \frac{1}{r^2} - r\}$	13
$a) y = \sqrt{r - r x }$ $r - r x \geq 0$ $r x \leq r \rightarrow x \leq 1$ $-1 \leq x \leq 1$	 $D_f = [-1, 1]$	14
$b) y = \sqrt{\frac{ x }{ x }}$ $\frac{ x }{ x } \geq 0$	$D_f = \mathbb{R} - \{0\}$	15