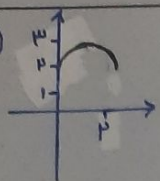
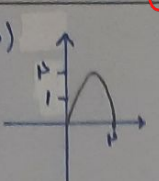
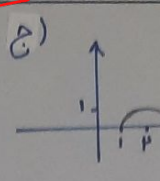
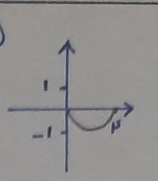


الف) 	ب) 	ج) 	د) 	۱
(۲) ✓				
الف) $(x-2)(x-3) > 0$ $\downarrow \quad \downarrow$ $2 \quad 3$ $ \quad + \quad - \quad +$ $(-\infty, 2) \cup (3, +\infty)$	ب) $(x-5)(x-1) < 0$ $\downarrow \quad \downarrow$ $5 \quad 1$ $ \quad + \quad - \quad +$ $(1, 5)$	ج) $(x+5)(x+1) \geq 0$ $\downarrow \quad \downarrow$ $-5 \quad -1$ $ \quad + \quad - \quad +$ $(-\infty, -5] \cup [-1, +\infty)$	د) $(x-4)(x-1) \leq 0$ $\downarrow \quad \downarrow$ $4 \quad 1$ $ \quad + \quad - \quad +$ $[1, 4]$	۲
(۲) ✓				
الف) $\frac{(x-2)(x-1)}{(x-5)} < 0$ $\downarrow \quad \downarrow \quad \downarrow$ $2 \quad 1 \quad 5$ $ \quad - \quad + \quad - \quad +$ $(-\infty, 1) \cup (2, 5)$	ب) $\frac{(x-1)(x+1)}{(x-5)(x-1)} \geq 0$ $\downarrow \quad \downarrow \quad \downarrow \quad \downarrow$ $1 \quad -1 \quad 5 \quad 1$ $ \quad + \quad - \quad - \quad +$ $(-\infty, -1] \cup (5, +\infty)$	(۲) ✓		۳
الف) $y = \sqrt{\frac{x^3-1}{x^3-x}} \Rightarrow \frac{x^3-1}{x^3-x} \geq 0 \Rightarrow \frac{(x-1)(x^2+x+1)}{x(x-1)(x+1)} \geq 0$ $\downarrow \quad \downarrow \quad \downarrow \quad \downarrow$ $1 \quad -1 \quad 0 \quad 1$ $ \quad + \quad - \quad + \quad +$ $D_f = (-\infty, -1) \cup (0, 1) \cup (1, +\infty)$ همواره مثبت است زیرا $a > 0$ و $\Delta < 0$ است.	ب) $y = \sqrt{\frac{x^2-16}{x^2-5x+4}} \Rightarrow \frac{x^2-16}{x^2-5x+4} \geq 0 \Rightarrow \frac{(x-4)(x+4)}{(x-4)(x-1)} \geq 0$ $\downarrow \quad \downarrow \quad \downarrow \quad \downarrow$ $4 \quad -4 \quad 1 \quad 4$ $ \quad + \quad - \quad + \quad +$ $D_f = (-\infty, -4] \cup (1, 4) \cup (4, +\infty)$	(۲) ✓		۴
الف) $1-x \geq 0 \Rightarrow x \leq 1$ $4-\sqrt{1-x} \geq 0 \Rightarrow 4 \geq \sqrt{1-x} \Rightarrow 16 \geq 1-x \Rightarrow x \geq -15$ $\cap \rightarrow -15 \leq x \leq 1 \quad D_f = [-15, 1]$	ب) $x-2 \geq 0 \Rightarrow x \geq 2$ $3-\sqrt{x-2} \geq 0 \Rightarrow 3 \geq \sqrt{x-2} \Rightarrow 9 \geq x-2 \Rightarrow 11 \geq x$ $\cap \rightarrow 2 \leq x \leq 11 \quad D_f = [2, 11]$			۵

الف) $4 - 2u^2 > 0 \Rightarrow 4 > 2u^2 \Rightarrow 2 > u^2 \Rightarrow -\sqrt{2} < u < \sqrt{2} \Rightarrow D_f = [-\sqrt{2}, \sqrt{2}]$

ب) $3|u| - 9 > 0 \Rightarrow 3|u| > 9 \Rightarrow |u| > 3 \Rightarrow u > 3 \text{ یا } u < -3 \Rightarrow D_f = (-\infty, -3] \cup [3, +\infty)$

✓

الف) $D_f = \mathbb{R} - \{\pm 3\}$

ب) $u > 0 \Rightarrow D_f = [0, +\infty) - \{9\}$
 $\sqrt{u} - 3 \neq 0 \Rightarrow \sqrt{u} \neq 3 \Rightarrow u \neq 9$

✓

الف) $\rho \cos u \neq 1$
 $\cos u \neq \frac{1}{\rho}$
 $D_f = \mathbb{R} - \{2K\pi - \frac{\pi}{\rho}, 2K\pi + \frac{\pi}{\rho}\}$
 $\rho \cos u - 1 \neq 0$

ب) $\rho \sin u + 1 \neq 0$
 $\rho \sin u \neq -1$
 $\sin u \neq -\frac{1}{\rho}$
 $D_f = \mathbb{R} - \{2K\pi - \frac{\pi}{\rho}, 2K\pi + \frac{\pi}{\rho}\}$

ج) $\tan u = \frac{\sin u}{\cos u}$ و $\cot u = \frac{\cos u}{\sin u} \Rightarrow \cos u, \sin u \neq 0$

$\cot u - 1 \neq 0 \Rightarrow \cot u \neq 1 \Rightarrow D_f = \mathbb{R} - \{K\pi + \frac{\pi}{4}, K\pi + \frac{5\pi}{4}\}$

د) $\rho \sin^2 u - 3 \neq 0$

$\rho \sin^2 u \neq 3$

$\sin^2 u \neq \frac{3}{\rho}$

$\sin u \neq \pm \sqrt{\frac{3}{\rho}}$

$D_f = \mathbb{R} - \{K\pi \pm \frac{\pi}{\rho}\}$

$2|u-2| - \frac{1}{\rho} > 0$

$2|u-2| > \frac{1}{\rho}$

$|u-2| > \frac{1}{2\rho} \Rightarrow u-2 > \frac{1}{2\rho} \rightarrow u > \frac{1}{2\rho} + 2$
 $\rightarrow u-2 < -\frac{1}{2\rho} \rightarrow u < -\frac{1}{2\rho} + 2$
 $\Rightarrow D_f = (-\infty, 2 - \frac{1}{2\rho}) \cup (2 + \frac{1}{2\rho}, +\infty)$

✓

الف) $4 - 2|u| > 0 \Rightarrow 4 > 2|u| \Rightarrow 2 > |u| \Rightarrow -2 < u < 2 \Rightarrow D_f = [-2, 2]$

ب) $\frac{|u|}{|u|} > 0 \Rightarrow D_f = \mathbb{R} - \{0\}$

این عبارت به ازای تمام اعداد مثبت و منفی یک می شود که عددی بزرگ تر مساوی صفر است.

✓