

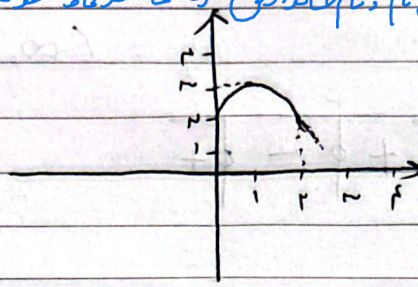
Subject:

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به دلیل نفوذ سن نام و نام خانوادگی غیر قضا شده خواهد شد.

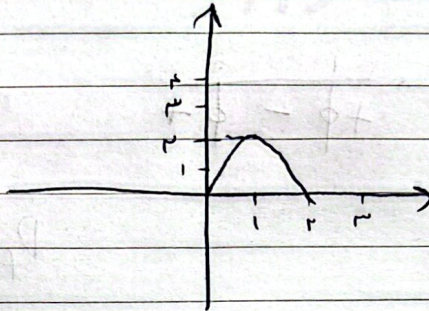
$f(x) + 2$

الف)



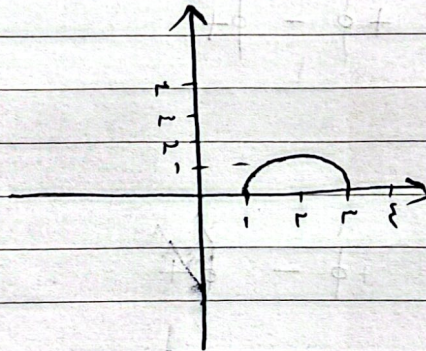
$2f(x)$

ب)



$f(x-1)$

ج)

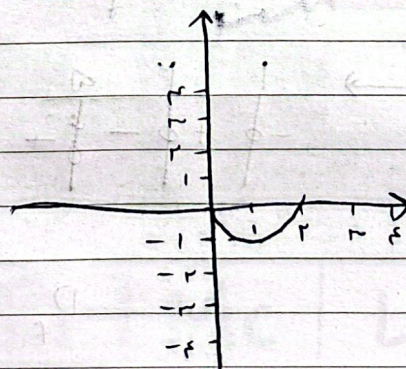


د)



$-f(x)$

ه)



IDEA

$$x^2 - 2x + 1 > 0$$

$$(x-1)(x-1) > 0$$

$$\downarrow \quad \downarrow$$

$$1 \quad 1$$

$$\rightarrow$$

$$+ \quad - \quad +$$

$$D_f = (-\infty, 1) \cup (1, +\infty)$$

(الف-1)

$$x^2 - 4x + 4 < 0$$

$$(x-2)(x-2) < 0$$

$$\downarrow \quad \downarrow$$

$$2 \quad 2$$

$$\rightarrow$$

$$+ \quad - \quad +$$

$$D_f = (2, 2)$$

(ب)

$$x^2 + 4x + 4 > 0$$

$$(x+2)(x+2) > 0$$

$$\downarrow \quad \downarrow$$

$$-2 \quad -2$$

$$\rightarrow$$

$$+ \quad - \quad +$$

$$D_f = (-\infty, -2] \cup [-2, +\infty)$$

(ج)

$$x^2 - 6x + 9 \leq 0$$

$$(x-3)(x-3) \leq 0$$

$$\downarrow \quad \downarrow$$

$$3 \quad 3$$

$$\rightarrow$$

$$+ \quad - \quad +$$

$$D_f = [3, 3]$$

(د)

$$x^2 - 3x + 2 < 0$$

$$(x-1)(x-2) < 0$$

$$\downarrow \quad \downarrow$$

$$1 \quad 2$$

$$\rightarrow$$

$$- \quad + \quad -$$

$$D_f = (-\infty, 1) \cup (2, +\infty)$$

(الف-2)

$$\frac{x^2 - 1}{x^2 - 4x + 4} \geq 0$$

$$(x-1)(x+1) \geq 0$$

$$\downarrow \quad \downarrow$$

$$-1 \quad 1$$

$$\rightarrow$$

$$+ \quad - \quad +$$

$$D_f = (-\infty, -1] \cup (4, +\infty)$$

(ب)

$$(x-1)(x-2)$$

$$\downarrow \quad \downarrow$$

$$1 \quad 2$$

$$\rightarrow$$

$$+ \quad - \quad +$$

$$+ \quad - \quad +$$

Subject:

$y = \frac{x^r - 1}{x^r - x} \rightarrow (n-1)(n^r + n + 1)$

$\Delta^r - \epsilon_{ac} = 1 - \epsilon = -r$

$\rightarrow (-\infty, -1) \cup (0, +\infty) - \{1\}$

$$y = \frac{\sqrt{\omega^2 - 1}}{\omega^2 - \omega + 1} \rightarrow \frac{(s - \frac{1}{\omega})(s + \frac{1}{\omega})}{(s - 1)(s - \frac{1}{\omega})} \rightarrow \frac{-1}{s + 0} - \frac{1}{s + \frac{1}{\omega}} + \frac{1}{s + \frac{1}{\omega}} \quad D_f = (-\infty, -1] \cup (1, +\infty) - \{1\}$$

$$y = \sqrt{r^2 - x^2}$$

$r = x \geq 0 \Rightarrow x \leq r$

$$D_f = [-r, r] \quad (a = r)$$

$$r - \sqrt{r-n} > 0 \Rightarrow \sqrt{r-n} \leq r \Rightarrow r-n \leq 1 \Rightarrow n-r > 1 \Rightarrow n > -1$$

$x = \sqrt{r - \sqrt{n - r}}$ r $D_f = [r, 11]$ ✓ (
 $\bullet \leq n - r \Rightarrow x \geq r$

$$r - \sqrt{n-r} \geq 0 \Rightarrow \sqrt{n-r} \leq r \Rightarrow n-r \leq r^2 \Rightarrow n \leq 11$$

$y = \sqrt{r - r^2}$
 $\downarrow r - r^2 \geq 0$
 $-\sqrt{r}, +\sqrt{r}$
 $\frac{-\sqrt{r}}{-} \quad + \quad \frac{+\sqrt{r}}{+}$

$$y = \sqrt{|x| - 9} \quad \text{②} \quad D_f = (-\infty, -3] \cup [3, +\infty)$$

$r|n-9\rangle$

$$y = \sqrt{\frac{|x|+1}{|x|-r}} \rightarrow \text{شماره مثبت و منفی}$$

$$D_f = (-\infty, -r) \cup (r, +\infty) \quad (1- \checkmark)$$

نقطه خارج از دامنه مثبت باشد
دامنه کمال فضا خود محدودیت ندارد.

$$D_f = \mathbb{R} - \{ \pm r \}$$

$$y = \sqrt{\frac{\sqrt{x}+1}{\sqrt{x}-r}} \rightarrow \text{شماره مثبت و منفی}$$

$$D_f = (r, +\infty) \quad (1- \checkmark)$$

$\sqrt{x} \neq r \rightarrow x \neq r^2$

$$D_f = [0, +\infty) - \{r^2\}$$

$x > 0$

$$y = \frac{\sin x}{r \cos x - 1}$$

$$D_f = \mathbb{R} - \left\{ r k \pi + \frac{\pi}{2}, r k \pi + \frac{3\pi}{2} \right\} \quad (1- \checkmark)$$

$r \cos x - 1 \neq 0$

$$r \cos x - 1 \neq 0 \Rightarrow \cos x \neq \frac{1}{r} \Rightarrow x \neq r k \pi + \frac{\pi}{r}, r k \pi + \frac{3\pi}{r}$$

$$y = \frac{\cos x + 1}{r \sin x + 1}$$

$$D_f = \mathbb{R} - \left\{ r k \pi - \frac{\pi}{2}, r k \pi - \frac{3\pi}{2} \right\} \quad (1- \checkmark)$$

$$r \sin x + 1 \neq 0 \Rightarrow r \sin x \neq -1 \Rightarrow \sin x \neq -\frac{1}{r} \Rightarrow x \neq r k \pi - \frac{\pi}{r}, r k \pi - \frac{3\pi}{r}$$

$$y = \frac{\tan x + r}{\cot x - 1}$$

$$D_f = \mathbb{R} - \left\{ r k \pi \pm \frac{\pi}{2}, k \pi, k \pi + \frac{\pi}{2} \right\} \quad (2- \checkmark)$$

$\cos x \neq 0 \Rightarrow x \neq r k \pi \pm \frac{\pi}{2}$
 $\sin x \neq 0 \Rightarrow x \neq k \pi$
 $\cot x - 1 \neq 0 \Rightarrow \cot x \neq 1 \Rightarrow x \neq k \pi + \frac{\pi}{4}$

$$y = \frac{\sin x + 1}{r \sin x - r}$$

$$D_f = \mathbb{R} - \left\{ r k \pi + \frac{\pi}{2}, r k \pi + \frac{3\pi}{2} \right\} \quad (1- \checkmark)$$

$\sin x \neq \pm \frac{r}{r} \Rightarrow \sin x \neq \pm 1 \Rightarrow x \neq r k \pi + \frac{\pi}{2}, r k \pi + \frac{3\pi}{2}$

$$D_f = \mathbb{R} - \{ r k \pi \pm \frac{\pi}{2} \}$$

$$y = \frac{1}{\sqrt{r|x-r| - \frac{1}{r}}}$$

$$D_f = (-\infty, 1) \cup (r, +\infty) \quad (1- \checkmark)$$

$r|x-r| - \frac{1}{r} > 0 \Rightarrow r|x-r| > \frac{1}{r} \Rightarrow |x-r| > \frac{1}{r^2}$
 $|x-r| > \frac{1}{r^2} \rightarrow x-r > \frac{1}{r^2} \rightarrow x > \frac{1}{r^2} + r$
 $x-r < -\frac{1}{r^2} \rightarrow x < -\frac{1}{r^2} + r$

$$y = \sqrt{r|x-r|} \rightarrow -r, r: \text{شماره مثبت و منفی}$$

$$D_f = [-r, r] \quad (1- \checkmark)$$

$$y = \sqrt{\frac{|x|}{|x|}}$$

$$D_f = \mathbb{R} - \{0\} \quad (1- \checkmark)$$

$\frac{|x|}{|x|} \geq 0$
 $x \neq 0$