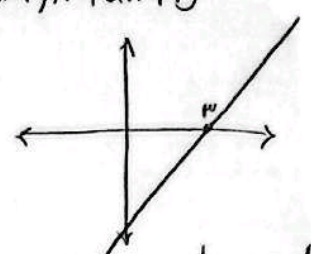
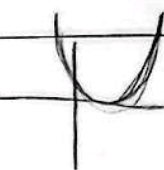


نام و نام خانوادگی: ... پاسخنامه تشریحی تکلیف شماره ... کلاس ...	نام و نام خانوادگی: ... پاسخنامه تشریحی تکلیف شماره ... کلاس ...	نام و نام خانوادگی: ... پاسخنامه تشریحی تکلیف شماره ... کلاس ...
$a=2$ $x+b=f(x)$ $2x+b=f(x)$ $4+b=0$ $b=-4$	$[3, +\infty)$ $f(x) = \sqrt{(a-x)x^2 + ax + b}$ 	۱
$x^2 + 2x + 2 - m^2 \geq 0$ $\Delta \leq 0$ $4 - 4(1)(2 - m^2) \leq 0$	$f(x) = \sqrt{x^2 + 2x + 2 - m^2}$ $D_f = \mathbb{R}$  $m^2 - 4 \leq 0 \Rightarrow -2 \leq m \leq 2$ $1 - (-1) \leq 1$	۲
$x^2 \geq 0$ $x^2 \leq 4$ $-2 \leq x \leq 2$	$f(x) = \frac{\sqrt{4-x^2}}{[x] + [-x] + 1}$ $D_f = \{-2, -1, 0, 1, 2\}$ $\Rightarrow$ if $x \notin \mathbb{Z} \Rightarrow -1 \Rightarrow -1+1=0$ if $x \in \mathbb{Z} \Rightarrow 0 \Rightarrow 0+1=1$ ✓	۳
$y = \sqrt{x^4 + 3x^2}$ $x^2(x^2 + 3) \geq 0$ $y = \sqrt{\frac{(x^2-1)(x^2-9)x^2}{x^4-1}}$	$x^2(x^2 + 3) \geq 0$ $\Rightarrow$ $x^2 \geq 0$ always true $\Rightarrow$ $x^2 + 3 \geq 0$ always true $\Rightarrow$ $x^2 \geq 1$ or $x^2 \geq 9$ $\Rightarrow$ $x \leq -1$ or $x \geq 1$ or $x \leq -3$ or $x \geq 3$ $D_f = [-1, 0] \cup [3, +\infty)$	۴
$y = \sqrt{ x-2 -3}$ $x-2 -3 \geq 0$ $x-2 \geq 3$ $x-2 \geq 3$ or $x-2 \leq -3$ $x \geq 5$ or $x \leq -1$	$x-2 -3 \geq 0$ $x-2 \geq 3$ $x-2 \geq 3$ or $x-2 \leq -3$ $x \geq 5$ or $x \leq -1$ $D_f = [5, +\infty) \cup (-\infty, -1]$	۵

$$y = \sqrt{1 - x|x|} \quad 1 - x|x| \geq 0 \quad x|x| \leq -1 \quad D_f = (-\infty, -1]$$

$$y = \frac{1}{\sqrt{\mu - |x - \omega|} - 1} \quad \sqrt{\mu - |x - \omega|} - 1 \neq 0 \quad \sqrt{\mu - |x - \omega|} \neq 1$$

$$\mu - |x - \omega| \geq 0 \quad |x - \omega| \leq \mu: -\mu \leq x - \omega \leq \mu \quad -\mu + \omega \leq x \leq \mu + \omega$$

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

$$الف) y = \frac{\sin^2 x - 1}{\cos x}$$

$$D_f = \mathbb{R} - \left\{ \frac{k\pi + \pi}{2} \right\}$$



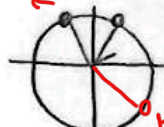
$$\cos x = -\frac{1}{2} \Rightarrow x = \frac{2\pi}{3}, \frac{4\pi}{3}$$

$$\frac{1}{2}$$

$$ب) y = \frac{\cos x}{2\cos x - 1}$$

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

$$2\cos x \neq 1$$



$$\frac{1}{2}$$

$$الف) y = \frac{x + \mu}{|2x + 1| - |x + \mu|}$$

$$(|2x + 1| \neq |x + \mu|)$$

$$D_f = \mathbb{R} - \left\{ \frac{-\mu}{2}, \mu \right\}$$

$$\sum x^2 + 1 + \varepsilon x \neq x^2 + 9 + 4x$$

$$2x^2 - 4x - 8 \neq 0$$

$$x^2 - 2x - 4 \neq 0 \quad (x - 1)(x + 5) \neq 0$$

$$x = \frac{1 \pm \sqrt{17}}{2}$$

$$\Rightarrow y = \sqrt{|2x + 1| - |x + \mu|}$$

$$|2x + 1| \geq |x + \mu|$$

$$\sum x^2 + 1 + \varepsilon x \geq x^2 + 9 + 4x$$

$$2x^2 - 4x - 8 \geq 0$$

$$x = \frac{1 \pm \sqrt{17}}{2}$$

$$f(x) = \sqrt{\log_{\omega}(\mu x - 1)}$$

$$\mu x - 1 \geq 0$$

$$\mu x \geq 1$$

$$x \geq \frac{1}{\mu}$$

$$\log_{\omega}(\mu x - 1) \geq 0$$

$$\mu x - 1 \geq 1$$

$$\mu x \geq 2$$

$$x \geq \frac{2}{\mu}$$

$$D_f = (\mu, +\infty)$$

$$\log_{\omega} \log_{\omega}(\mu x - 1) > 0$$

$$\mu x - 1 > \omega$$

$$\mu x > \omega + 1$$

$$x > \frac{\omega + 1}{\mu}$$

مجموعه حقیقی نیست (وقتی متناهی بود است) و نامتناهی معنی میدهد

ابتدای بازه باید از انتهای بازه غیرمتناهی است!

$$\log_{\omega} \mu - 1 \leq \mu x - 1 \leq \omega \rightarrow \mu x - 1 \leq \omega \rightarrow \mu x \leq \omega + 1 \rightarrow D_f = (-\infty, \frac{\omega + 1}{\mu}]$$

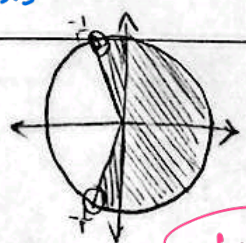
$$الف) y = \log(2\cos x + 1)$$

$$2\cos x + 1 > 0$$

$$2\cos x > -1$$

$$\cos x > -\frac{1}{2}$$

$$D_f = \left(\frac{k\pi - \frac{2\pi}{3}}{2}, \frac{k\pi + \frac{2\pi}{3}}{2} \right)$$



$$\frac{1}{2}$$

$$ب) y = \sqrt{\log \frac{n-1}{n+1}}$$

$$\frac{n-1}{n+1} > 0$$

$$n+1 > 0$$

$$n > -1$$

$$\frac{n-1}{n+1} \geq 1$$

$$n-1 \geq n+1$$

$$-2 \geq 2$$

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

$$\log \frac{n-1}{n+1} \geq 0 \rightarrow \frac{n-1}{n+1} \geq 1 \rightarrow n-1 \geq n+1 \rightarrow D_f = (-\infty, -1)$$

٤- ب) $\frac{(x^2-1)(x^2-x^2)}{(x^2-1)} \geq 0 \rightarrow \frac{(n-1)(n+1)(n^2)(n-1)}{(n-1)(x^2+x+1)} \geq 0$

$D_f = (-\infty, -1] \cup \{0\} \cup [3, +\infty)$

$\Delta < 0$ همیشه ندارد

Sign chart: $-1 \quad 0 \quad 1 \quad 3$
 $+ \quad - \quad - \quad - \quad +$

٥- ب) $y = \frac{C \cdot \sin}{C \cdot \sin - 1} \rightarrow C \cdot \sin - 1 \neq 0 \rightarrow C \cdot \sin \neq \frac{1}{C}$

$D_f = \mathbb{R} - \left\{ \frac{1}{C} \right\}$

Unit circle diagram showing $\frac{1}{C} \sin$ and $\frac{1}{C}$ on the y-axis.

٩) $\log_{\frac{1}{5}} \log_a^{x-1} \rightarrow x-1 > 0 \rightarrow x > 1$

$\log_a^{x-1} > 0 \rightarrow x-1 > 0 \rightarrow x-1 > 1 \rightarrow x > 2$

$\log_{\frac{1}{5}} \log_a^{x-1} \geq 0 \xrightarrow[\text{من باب عوض!}]{\text{من بابی دوا}} \log_a^{x-1} \leq \frac{1}{5} \rightarrow \log_a^{x-1} \leq 1 \rightarrow x-1 \leq 5 \rightarrow x \leq 6$

$\hookrightarrow D_f = (1, 6]$

١٠- الف) $C \cdot \sin + 1 > 0 \rightarrow C \cdot \sin > -\frac{1}{C}$

$D_f = \left(\frac{1}{C} - \frac{\pi}{2}, \frac{1}{C} + \frac{\pi}{2} \right)$

Unit circle diagram showing the shaded region between $\frac{1}{C}$ and $-\frac{1}{C}$ on the y-axis.

١٠- ب) $\frac{n-1}{n+1} > 0 \rightarrow n > 1 \leq n < -1$

$\log_{\frac{n+1}{n-1}} \geq 0 \rightarrow \frac{n-1}{n+1} \geq 1 \rightarrow \frac{n-1}{n+1} \geq 1 \rightarrow \frac{n-1}{n+1} - 1 \geq 0 \rightarrow \frac{n-1-n-1}{n+1} \geq 0 \rightarrow \frac{-2}{n+1} \geq 0$

$n+1 < 0 \rightarrow n < -1 \rightarrow D_f = (-\infty, -1)$