

نام و نام خانوادگی: راستین توکلی پاستنماه شریعی تکلیف شماره ۴ کلاس یازدهم پسر A

۱۴، ۱۵
 $f(x) = \sqrt{(a-2)x^2 + 9x + b} \Rightarrow [2, +\infty)$ عبارت زیر رادیکال درجه دوم باشد
 $a-2=0 \Rightarrow a=2$
 $2x+b \Rightarrow 2(2)+b=0 \Rightarrow b=-4$ دقت کن!

$f(x) = \sqrt{x^2 + 2x + 2 - m^2} \Rightarrow D_f = \mathbb{R} \Rightarrow \Delta = 0 \Rightarrow 4 - (4)(1)(2-m^2) = 0$
 $4 - 4 + 4m^2 = 0 \Rightarrow 4m^2 = 0 \Rightarrow m = 0$
 $4 - 1 + m^2 = 0 \Rightarrow m^2 - 3 = 0 \Rightarrow m = \pm \sqrt{3}$
 $1 - (-1) = 2$

$f(x) = \frac{\sqrt{4-x^2}}{[x] + [-x] + 1}$
 $4-x^2 \geq 0 \Rightarrow x^2 \leq 4 \Rightarrow -2 \leq x \leq 2$
 $D_f = \{-2, -1, 0, 1, 2\}$

$[x] + [-x] + 1 \xrightarrow{x=2} 0 + 1 = 1$
 $\xrightarrow{x=-1} -1 + 1 = 0$ غلطی

$y = \sqrt{x^3 + 2x^2} \Rightarrow x^2(x+2)$
 $D_f = [-2, +\infty)$

$y = \sqrt{\frac{(x^2-1)(x^3-2x^2)}{x^3-1}}$
 $x^3-1 \neq 0 \Rightarrow x^3 \neq 1 \Rightarrow x \neq 1$
 $x^3-2x^2 = x^2(x-2)$
 $D_f = (-\infty, -1] \cup [0, 2) \cup [3, +\infty)$

$y = \sqrt{|x-2| - 3} \Rightarrow |x-2| - 3 \geq 0 \Rightarrow |x-2| \geq 3$
 $|x-2| \geq 3 \Rightarrow x-2 \geq 3 \Rightarrow x \geq 5$
 $|x-2| \geq 3 \Rightarrow 2-x \geq 3 \Rightarrow -x \geq 1 \Rightarrow x \leq -1$
 $D_f = (-\infty, -1] \cup [5, +\infty)$

$y = \sqrt{4 - |2-x|} \Rightarrow 4 - |2-x| \geq 0 \Rightarrow 4 \geq |2-x|$
 $|2-x| \leq 4 \Rightarrow -4 \leq 2-x \leq 4$
 $-4 \leq 2-x \Rightarrow -6 \leq -x \Rightarrow x \leq 6$
 $2-x \leq 4 \Rightarrow -2 \leq -x \Rightarrow x \leq 2$
 $D_f = [-2, 6]$

$y = \sqrt{1-x|x|} \Rightarrow 1-x|x| \geq 0 \Rightarrow 1 \geq x|x|$
 $1 \geq x^2 \Rightarrow -1 \leq x \leq 1$
 $1 \geq -x^2 \Rightarrow -\infty \leq x \leq \infty$
 $D_f = (-\infty, 1]$

$y = \frac{1}{\sqrt{3-|x-a|}-1} \Rightarrow 3-|x-a|-1 \geq 0 \Rightarrow 2-|x-a| \geq 0 \Rightarrow 2 \geq |x-a|$
 $|x-a| \leq 2 \Rightarrow a-2 \leq x \leq a+2$
 $D_f = (a-2, a+2)$

$y = \frac{\sin^2 x - 1}{\cos x} \Rightarrow \cos x \neq 0 \Rightarrow D_f = \mathbb{R} - \{k\pi + \frac{\pi}{2}\}$

$y = \frac{\cos x}{2\cos x - 1} \Rightarrow 2\cos x - 1 \neq 0 \Rightarrow \cos x \neq \frac{1}{2} \Rightarrow D_f = \mathbb{R} - \{2k\pi + \frac{\pi}{3}, 2k\pi - \frac{\pi}{3}\}$

$$y = \frac{x+r}{|x+1| - |x+r|} \Rightarrow ||x+1| - |x+r|| \neq 0$$

$$\left. \begin{aligned} x > -\frac{1}{r} &\Rightarrow r(x+1) - x - r \Rightarrow x - r \neq 0 \Rightarrow x \neq r \\ \frac{1}{r} > x > -r &\Rightarrow -r(x-1) - x - r \Rightarrow -rx - r \neq 0 \Rightarrow x \neq -\frac{r}{r} \\ -r > x &\Rightarrow -r(x-1) + x + r \Rightarrow -x + r \neq 0 \Rightarrow x \neq r \end{aligned} \right\} D_f = \mathbb{R} - \left\{-\frac{r}{r}, r\right\}$$

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

$x+1$	-	-	0	+
$x+r$	-	0	+	+

$$D_f = \mathbb{R} - \left(-\frac{r}{r}, r\right)$$

$$\begin{aligned} x \leq -r &\Rightarrow -r(x-1) + x + r \Rightarrow -x + r \geq 0 \Rightarrow x \leq r \\ -r < x \leq -\frac{1}{r} &\Rightarrow -r(x-1) - x - r \Rightarrow -rx - r \geq 0 \Rightarrow x \leq -\frac{r}{r} \\ -\frac{1}{r} < x &\Rightarrow r(x+1) - x - r \Rightarrow x - r \geq 0 \Rightarrow x \geq r \end{aligned}$$

$$f(x) = \sqrt{\log \frac{\log(x-1)}{\log a}}$$

$$D_f = \left(\frac{1}{r}, +\infty\right)$$

$$\log \frac{x-1}{a} > 0 \Rightarrow x-1 > a \Rightarrow x > 1 + \frac{1}{r}$$

$$\log(r \cos x + 1)$$

$$2(\cos x + 1) > 0 \Rightarrow 2 \cos x > -1 \Rightarrow \cos x > -\frac{1}{2}$$

$$\Rightarrow D_f = \left(2k\pi + \frac{2\pi}{3}, 2k\pi + \frac{4\pi}{3}\right)$$

$$y = \sqrt{\log \left(\frac{x-1}{x+1}\right)}$$

$$\Rightarrow \frac{x-1}{x+1} > 0 \Rightarrow \frac{-1}{+} \frac{1}{-} +$$

$$\frac{x-1}{x+1} \geq 1 \Rightarrow \frac{x-1}{x+1} - 1 \geq 0 \Rightarrow \frac{x-1-(x+1)}{x+1} \geq 0 \Rightarrow$$

$$\frac{-2}{x+1} \geq 0 \Rightarrow x+1 < 0 \Rightarrow x < -1 \Rightarrow D_f = (-\infty, -1)$$

(۲) چون دامنه تابع R است پس عبارت زیر را میال همواره نامتناهی است پس باید سهمی (بارشیهی مفتوحه یا بدون ریشه) ^{حالت +} ^{حالت -}

مواضع هم (سهمی min دار است چون ضریب n^2 می باشد)

$$\Delta \leq 0 \rightarrow (2)^2 - 4(2 - n^2) \leq 0 \rightarrow 4 - 8 + 4n^2 \leq 0 \rightarrow 4n^2 \leq 4 \rightarrow n^2 \leq 1$$

$$-1 \leq n \leq 1 \rightarrow \min(n) = -1 \rightarrow \max(n) - \min(n) = 1 - (-1) = 2$$

$\hookrightarrow \max(n) = -1$

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

$\Delta \leq 0$ ریشه ندارد

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

-1	*	*	3
+	-	-	+

۴- ب) $3 - |n-5| \geq 0 \rightarrow |n-5| \leq 3 \rightarrow -3 \leq n-5 \leq 3 \rightarrow 2 \leq n \leq 8$

$\sqrt{3 - |n-5|} - 1 \neq 0 \rightarrow \sqrt{3 - |n-5|} \neq 1 \rightarrow 3 - |n-5| \neq 2 \rightarrow |n-5| \neq 2 \rightarrow n \neq 7, 3$

$D_f = [2, 8] - \{3, 7\} = [2, 3) \cup (3, 7) \cup (7, 8]$

۹) $\log_a \log_a^{n-1} \rightarrow n-1 > 0 \rightarrow n > 1$

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

$\log_a \log_a^{n-1} \geq 0 \xrightarrow[\text{صحت عوض می شود!}]{\text{منابعی دهوا}} \log_a^{n-1} \leq 4a \rightarrow \log_a^{n-1} \leq 1 \rightarrow n-1 \leq 5 \rightarrow n \leq 6 \rightarrow n \leq 3$

$\hookrightarrow D_f = (1, 3]$