

1, 2

1) $f(x) = \sqrt{(a-x)x^2 + ax + b}$

$a-x \geq 0 \rightarrow a \geq x$
 $\sqrt{mx+b}$
 $mx+b \geq 0 \rightarrow x \geq -b/m$
 $b = -2$
 $x \geq 0$

2) $f(x) = \sqrt{m^2x^2 + 2mx + m^2}$

$\Delta < 0 \Rightarrow 4 - 4(m^2) < 0$

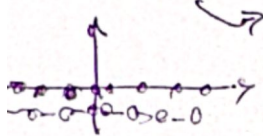
$1 - (-1) = 2$

min	max
-1	1

$m^2 - 4 < 0$
 $4(m^2 - 1) < 0$
 $m^2 - 1 \neq 0$
 $m \neq \pm 1$

3) $\sqrt{f - x^2}$

$[x] + [-x] + 1$



$f - x^2 \geq 0$
 $x^2 \leq f$
 $-2 \leq x \leq 2$
 $D_f = \{-2, -1, 0, 1, 2\}$
 سؤال 5 موضح رتب!

4) $\sqrt{x^3 + 3x^2}$

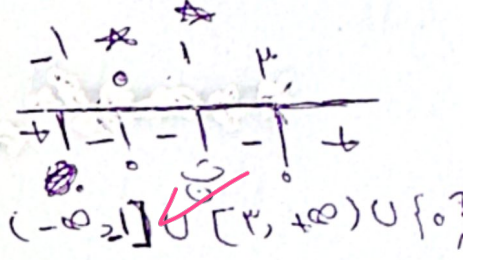
$D_f = [-2, +\infty)$

$x^3 + 3x^2 \geq 0 \Rightarrow x^2(x+3) \geq 0$

-	+	+
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$\sqrt{\frac{(x^2-1)(x^2-3x^2)}{x^3-1}}$

$x^2 - 1 \neq 0$
 $x^2 \neq \pm 1$
 $x \neq 1$
 $x^2(x-3) \neq 0$
 $x \neq 3$



5) الف) $y = \sqrt{|x+2| - 2}$

$|x+2| - 2 \geq 0$

$|x+2| \geq 2$

$x+2 \geq 2 \Rightarrow x \geq 0$

$x+2 \leq -2 \Rightarrow x \leq -4$

$D_f = [-4, 0] \cup [0, +\infty)$

ب) $y = \sqrt{4 - |x-m|}$

$4 - |x-m| \geq 0$

$|x-m| \leq 4 \Rightarrow -4 \leq x-m \leq 4$

$D_f = [-4, 4]$

4) الف) $y = \sqrt{1 - \alpha|\alpha|}$

$1 - \alpha|\alpha| \geq 0$
 $\alpha|\alpha| \leq 1 \Rightarrow \alpha \in [-1, 1]$
 $D_f = [-1, 1]$

د

ب) $y = \frac{1}{\sqrt{r - |\alpha - \alpha|} - 1}$

(1) $r - |\alpha - \alpha| > 1$ (2) $\sqrt{r - |\alpha - \alpha|} \neq 1$

$|\alpha - \alpha| \leq r$
 $-r \leq \alpha - \alpha \leq r$
 $-r \leq \alpha \leq r$

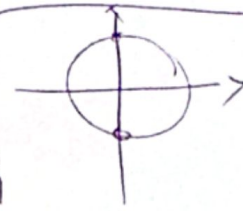
(1) $\alpha \in D_f = [-r, r] - \{r, -r\}$

$r - |\alpha - \alpha| \neq 1$
 $|\alpha - \alpha| \neq r$
 $\alpha - \alpha \neq \pm r$
 $\alpha \neq \pm r$

$V_{\text{ب}} y = \frac{\sin^2 x - 1}{\cos x}$

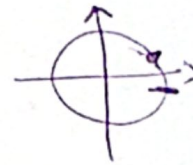
$\cos x \neq 0$

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



ب) $y = \frac{\cos x}{r \cos x - 1}$

$r \cos x - 1 \neq 0$
 $\cos x \neq \frac{1}{r}$



1, 1/5

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

$\cos \frac{\pi}{4} = \frac{1}{\sqrt{2}}$, $\cos \frac{\pi}{4} = \frac{\sqrt{2}}{2}$ دائرة متحدة

1) $y = \frac{\alpha + r}{|r\alpha + 1| - |\alpha + r|}$

$r\alpha + 1 \neq \alpha + r \Rightarrow \alpha \neq r$

$r\alpha + 1 \neq -\alpha - r \Rightarrow \alpha \neq -\frac{r}{r+1}$

$|r\alpha + 1| \neq |\alpha + r|$

$D_f = \mathbb{R} - \left\{ r, -\frac{r}{r+1} \right\}$

ب) $y = \sqrt{|r\alpha + 1| - |\alpha + r|}$

$|r\alpha + 1| \geq |\alpha + r|$

$(r\alpha + 1)^2 \geq (\alpha + r)^2$

$\Rightarrow \sum \alpha^2 + \sum \alpha + 1 \geq \alpha^2 + 2\alpha + r$
 $r\alpha^2 - r\alpha - 1 \geq 0$

$\frac{-\frac{r}{r+1}}{-\frac{r}{r+1}}$

$(r\alpha + 1)(\alpha - r) \geq 0$

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

$$f(x) = \sqrt{\log_{0.5} (x-1)}$$

(9)

$$\log_a (x-1) > .$$

$$\log_{0.5} (x-1) > .$$

$$x-1 > .$$

$$x > 1$$

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

$$x-1 > 1$$

$$x > 2$$

$$(2, +\infty)$$

(1, 2)

(1, 2)

وقتی ضابطه ها

است مثبت (صحت بیفتد) است مثبت (صحت بیفتد)

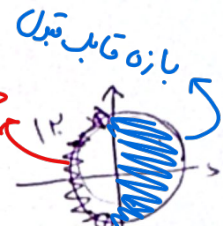
$$\log_{0.5} (x-1) > 1$$

$$x-1 > 0 \Rightarrow x > 1 \Rightarrow x > 2$$

$$10) \text{ الف } y = \log(x \cos x + 1)$$

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

در این نامیه $-\frac{1}{x} \sin x$ است!



$$D_f = \left[2k\pi - \frac{\pi}{2}, 2k\pi + \frac{\pi}{2} \right]$$

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

(1, 2)

$$ب) \sqrt{\log \frac{x-1}{x+1}}$$

$$\log \frac{x-1}{x+1} > .$$

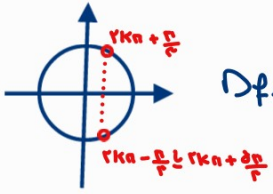
$$\frac{x-1}{x+1} > .$$

$$\frac{-1}{-1} > \frac{1}{1}$$

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

$$\frac{x-1}{x+1} > 1 \Rightarrow \frac{x-1-x-1}{x+1} > 0 \Rightarrow \frac{-2}{x+1} > 0 \Rightarrow x < -1$$

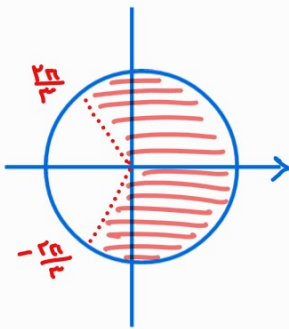
$$D_f = (-\infty, -1)$$

٧- ب) $y = \frac{C \cdot \sin}{rC \cdot \sin - 1} \rightarrow rC \cdot \sin - 1 \neq 0 \rightarrow C \sin \neq \frac{1}{r} \rightarrow$  $Df = \mathbb{R} - \left\{ rKn \pm \frac{\pi}{r} \right\}$

٩) $\log_{\Delta} \log_a^{r_n-1} \rightarrow r_n - 1 > 0 \rightarrow n > \frac{1}{r}$

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

$\log_{\Delta} \log_a^{r_n-1} \geq 0 \xrightarrow[\text{منشود!}]{\text{منابعه هـ را حسب عوض}} \log_{\Delta}^{r_n-1} \leq \frac{1}{\Delta} \rightarrow \log_a^{r_n-1} \leq 1 \rightarrow r_n - 1 \leq \Delta \rightarrow r_n \leq 4 \rightarrow n \leq 3$
 $\hookrightarrow Df = (1, 3]$

١٥- الف) $rC \cdot \sin + 1 > 0 \rightarrow C \cdot \sin > -\frac{1}{r} \rightarrow$  $\rightarrow Df = (rKn - \frac{\pi}{r}, rKn + \frac{\pi}{r})$