Subject.
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(10) الف) $y=\sqrt{4^{4x-x^2}-1} \Rightarrow 4^{4x-x^2} \geq 1 \Rightarrow 4^{4x-x^2} \geq 4^0 \Rightarrow 4x-x^2 \geq 0$

$\Rightarrow x^2-4x+4 \leq 0 \Rightarrow (x-2)(x-1) \leq 0 \Rightarrow$

	1		2	
+	0	−	0	+

$\Rightarrow D_f = [1,2]$

ب) $\left(\frac{3x+5}{2x+4}\right)! \Rightarrow \frac{3x+5}{2x+4} \in W \Rightarrow 3x+5 \in 2Wx+4W$

$\Rightarrow 3x-2Wx \in 4W-5 \Rightarrow x(3-2W) \in 4W-5 \Rightarrow x \in \frac{4W-5}{3-2W}$

$\Rightarrow D_f = \left\{x \mid x = \frac{4k-5}{3-2k}, k \in W\right\}$

تکلیف ۳ — اسدیور رزاق زادگان

(7) $\frac{x+3}{2x^3+3x^2-11x+3}$

$\Rightarrow 2x^3+3x^2-11x+3 \neq 0$, $2+3+3-11=0$

$\xrightarrow{\div x-1} (x-1)(x+3)(2x-1) \Rightarrow$ ریشه‌ها: $-3, 1, \frac{1}{2}$

$\Rightarrow D_f = \mathbb{R} - \left\{1, -3, \frac{1}{2}\right\}$

ب) $\frac{x+3}{2x^3+9x^2+10x+3}$

$(2+10)=(9+3)$

$2x^3+9x^2+10x+3 \neq 0 \xrightarrow{\div x+1} (x+1)(x+3)(2x+1)$

$\Rightarrow$ ریشه‌ها: $-1, -3, -\frac{1}{2} \Rightarrow D_f = \mathbb{R} - \left\{-1, -3, -\frac{1}{2}\right\}$

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(2) $\frac{x+2}{x^3-2x^2+2x-1} \Rightarrow x^3-2x^2+2x-1 \neq 0$ $\xrightarrow{\div x-1}$ $(x-1)(x^2+1)$

$1-1+2-2=0$

$\Rightarrow$ تعیین ریشه $\rightarrow$ (1) $\Rightarrow$ $D_f = \mathbb{R} - \{1\}$

ب) $\sqrt{\frac{x+2}{x^3-2x^2+2x-1}} \Rightarrow$ (1) $x^3-2x^2+2x-1 \neq 0 \rightarrow$ ریشه $= 1$

(2) $\frac{x+2}{x^3-2x^2+2x-1} \geq 0 \rightarrow$ ریشه $= -2$

	-2		1	
	$+$	0	$-$	$\nexists$	$+$

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

(3) $y = \frac{2}{x^2-5|x-1|-2x+5} \Rightarrow x^2-5|x-1|-2x+5 \neq 0 \Rightarrow$

$x^2-7x+5 \neq 0 \Rightarrow x \neq \frac{7 \pm \sqrt{29}}{2}$

$x^2-5(-x)-2x+5 = x^2+3x+5 \neq 0 \Rightarrow \Delta = 9-20 = -11 \Rightarrow$ ریشه $\neq 0$

$\Rightarrow D_f = \{\frac{7 \pm \sqrt{29}}{2}\}$

(4) $\frac{x+2}{|x+1|-|x+2|} \Rightarrow |x+1|-|x+2| \neq 0 = (x+1)^2-(x+2)^2$

$\rightarrow x \geq -1 \Rightarrow (x+1)-(x+2) = -2 \Rightarrow \neq 0$ ✓

$-2 \leq x < -1 \Rightarrow -(x+1)-(x+2) = -2x-4 = -2(x+2) \Rightarrow x \neq 2$

$x < -2 \Rightarrow -(x+1)-(-(x+2)) = -x-1+x+2 = 2 \Rightarrow x \neq 0$ ✓

$\Rightarrow D_f = \mathbb{R} - \{-2\}$

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④ ب) $y = \sqrt{|x+1| - |x+3|} \Rightarrow |x+1| - |x+3| \geq 0$

$\Rightarrow x \geq -1 \Rightarrow (x+1) - (x+3) = -2 \Rightarrow < 0$ ✗

$-3 \leq x < -1 \Rightarrow -(x+1) - (x+3) = -2x - 4 = -2(x+2) \geq 0 \Rightarrow x \leq -2$

$x < -3 \Rightarrow -(x+1) - (-(x+3)) = 2 \Rightarrow > 0$ ✓

$\Rightarrow D_f = (-\infty, -3] \cup [-2, -2]$

⑤ $y = \log_2^{(1 - \log_3 \frac{x}{3})}$ ① شرط $\rightarrow x > 0$

② شرط $\rightarrow 1 - \log_3 \frac{x}{3} > 0 \Rightarrow \log_3^x < 1 \Rightarrow x < 3$

$\Rightarrow D_f = (0, 3) \rightarrow$ ① ∩ ②

$y = \log_2^{(1 - \log_{\frac{1}{2}} x)}$ شرط اول $\rightarrow x > 0$ ①

شرط دوم $\rightarrow 1 - \log_{\frac{1}{2}} x > 0 \Rightarrow \log_{\frac{1}{2}}^x < 1 \Rightarrow x < \frac{1}{2}$ ②

① ∩ ② $\Rightarrow D_f = (0, \frac{1}{2})$

⑥ $f(x) = \sqrt{\log_{\log_{0.1} 5}^{(2x-1)}}$ شرط ① $\rightarrow \log_5^{(2x-1)} > 0 \Rightarrow R$ ①

شرط ② $\rightarrow (2x-1) > 0 \Rightarrow 2x > 1 \Rightarrow x > \frac{1}{2}$ ②

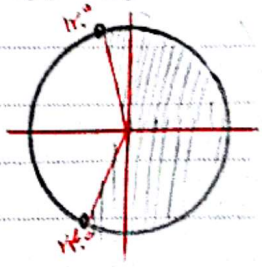
شرط ③ $\rightarrow \log_{0.1}^{\log_5^{(2x-1)}} > 0 \Rightarrow \log_5^{2x-1} < 1 \Rightarrow 2x - 1 \leq 5$

$\Rightarrow 2x \leq 6 \Rightarrow x \leq 3$ ③

① ∩ ② ∩ ③ $\Rightarrow D_f = (\frac{1}{2}, 3]$

⑦ $y = \log^{(2\cos x + 1)} \rightarrow 2\cos x + 1 > 0 \Rightarrow 2\cos(x) > -1 \Rightarrow \cos(x) > -0.5$

$\Rightarrow D_f = [2k\pi - \frac{2\pi}{3}, 2k\pi + \frac{2\pi}{3}]$



Subject. $\frac{n-1}{n+1} \geq 0$ ، $n \neq 0$

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(7) ب) $\sqrt{\log\left(\frac{n-1}{n+1}\right)}$ ⇒ ↳ شرط ① $\frac{n-1}{n+1} > 0 \Rightarrow (n>1) \cup (n<-1)$

شرط ② $\log \frac{n-1}{n+1} \geq 0 \Rightarrow \frac{n-1}{n+1} \geq 1$

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

(8) $f(x) \sqrt{(a+2)x^2 + ax + b} \to (-\infty, 2] \Rightarrow (a+2)x^2 + ax + b \geq 0$

$\Rightarrow x \leq 2$

(9) $f(x) \sqrt{x^2 + 2x + 2 - m^2} \Rightarrow x^2 + 2x + 2 - m^2 \geq 0 \Rightarrow (x+1)^2 - m^2 \geq 0$

$1 - m^2 \leq 0 \Rightarrow m^2 \geq 1 \Rightarrow |m| \geq 1 \Rightarrow$ بیشترین مقدار $m=1$ ، کمترین مقدار $m=+1$

$\Rightarrow 1 - (-1)$ (2)

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

↳ شرط ② $[x] + [-x] + 1 \neq 0$

$x \in \mathbb{Z} \Rightarrow [x] + [-x] = -x + x = 0$ ✓ (2)

$x \notin \mathbb{Z}$ $[x] + [-x] = -1 \Rightarrow$ ✗ $\{$ ① ∩ ② $\Rightarrow [-2, 2] \mid x \in \mathbb{Z}$

$\Rightarrow -2, -1, 0, 1, 2 =$ 5 عدد صحیح