

۲۰

الف) $y = \frac{x+3}{2x^3+3x^2-12x+3} \rightarrow 2x^3+3x^2-12x+3 \neq 0 \Rightarrow 2x^3+3x^2-12x+3 = 0$
 $x=1$ $\rightarrow x = \frac{1}{2}, x = -3$
 $(x-1)(2x^2+5x-3) \neq 0 \Rightarrow D_y = \mathbb{R} - \{1, \frac{1}{2}, -3\}$
 $5 \quad 2x^2+5x-3 \rightarrow a+b+c=0 \rightarrow x = -4, x = 1$

ب) $y = \frac{x+4}{2x^3+9x^2+10x+4} \rightarrow 2x^3+9x^2+10x+4 \neq 0$
 $x = -1$ $\rightarrow x = -\frac{1}{2}, x = -4$
 $\Rightarrow (2x+1)(x^2+4x+4) \neq 0$
 $10 \quad x^2+4x+4 \rightarrow a+c \leq b \rightarrow x = -1, x = -4$
 $\Rightarrow D_y = \mathbb{R} - \{-1, -\frac{1}{2}, -4\}$

الف) $y = \frac{x+3}{x^3-2x^2+2x-1} \rightarrow x^3-2x^2+2x-1 \neq 0$
 $15 \quad x=1$
 $(x^2-x+1)(x-1) \neq 0 \Rightarrow D_y = \mathbb{R} - \{1\}$
 $\rightarrow \Delta < 0, a > 0 \rightarrow \oplus$

ب) $y = \sqrt{\frac{x+3}{x^3-2x^2+2x-1}} \Rightarrow \frac{x+3}{(x-1)(x^2-x+1)} > 0$
 $20 \quad \rightarrow \text{مقادیر مثبت}$
 $\Rightarrow D_y = (-\infty, -3] \cup (+1, +\infty)$

$x^2 - 2|x-1| - 2x + 2 \neq 0 \quad x \geq 1 \rightarrow x^2 - 2x + 2 - 2x + 2 \neq 0$
 $\Rightarrow x^2 - 4x + 4 \neq 0 \rightarrow (x-2)(x-2) \neq 0 \Rightarrow x \neq 2, x \neq 2$
 $25 \quad x < 1 \rightarrow x^2 + 3x \neq 0 \Rightarrow x(x+3) \neq 0 \Rightarrow x \neq -3, x \neq 0$
 $\rightarrow D_y = \mathbb{R} - \{-3, 2, 0\}$

الف) $\rightarrow |2x+1| \neq |x+3| \rightarrow 4x^2+1+4x \neq x^2+9+4x \Rightarrow$
 $3x^2-2x-8 \neq 0 \Rightarrow x^2-2x-4 \neq 0 \Rightarrow (x-4)(x+2) \neq 0$
 $\Rightarrow x \neq 4, x \neq -2 \Rightarrow D_y = \mathbb{R} - \{4, -2\}$

Subject:

Year: Month: Day: ()

page: ()

ب) $\rightarrow |2n+1| - |n+3| \geq 0 \Rightarrow 3n-2 \geq 0 \Rightarrow n \geq \frac{2}{3}, n=2$
 $\Rightarrow \frac{-\frac{2}{3}}{+1-1+} \rightarrow Dy = (-\infty, -\frac{2}{3}] \cup [2, +\infty)$

الف) $\rightarrow x > 0, 1 - \log_x x > 0 \Rightarrow \log_x x < 1 \Rightarrow x < 3 \Rightarrow Dy = (0, 3)$

ب) $\rightarrow x > 0, 1 - \log_{\frac{x}{2}} x > 0 \Rightarrow \log_{\frac{x}{2}} x < 1 \Rightarrow x > \frac{1}{2} \Rightarrow Dy = (\frac{1}{2}, +\infty)$

$\log_{\frac{1}{2}} a^{(2n-1)} \geq 0 \Rightarrow 2n-1 \geq 0 \Rightarrow n \geq \frac{1}{2}, \log_{\frac{1}{2}} a^{(2n-1)} > 0 \Rightarrow$
 $2n-1 > 1 \Rightarrow n > 1, \log_{\frac{1}{2}} a^{(2n-1)} \geq 0 \Rightarrow$
 $\Rightarrow \log_a^{(2n-1)} \leq 1 \Rightarrow 2n-1 \leq a \Rightarrow n \leq \frac{a+1}{2} \Rightarrow Dy = [1, \frac{a+1}{2}]$

الف) $\rightarrow |\cos x + 1| > 0 \Rightarrow \cos x > -1 \Rightarrow Dy = (2k\pi - \frac{2\pi}{2}, 2k\pi + \frac{2\pi}{2})$

ب) $\frac{x-1}{x+1} > 0 \rightarrow \frac{-1+1}{+1-1+} \textcircled{1}, \log_{\frac{x-1}{x+1}} \frac{x-1}{x+1} > 0 \Rightarrow \frac{x-1}{x+1} > 1 \Rightarrow \frac{x-1-x-1}{x+1} > 0$
 $\Rightarrow \frac{-2}{x+1} > 0 \rightarrow (-\infty, -1) \Rightarrow Dy = (-\infty, -1)$

$f(x) = \sqrt{(a+x)x^2 + ax + b} \rightarrow Df = (-\infty, 2] \Rightarrow \text{Circled } C$
 $\Rightarrow a+2=0 \Rightarrow a=-2 \text{ f(2) so } 4a+b=0 \Rightarrow b=8$

$x^2 + 2x + 2 - m^2 \geq 0 \quad Df = \mathbb{R} \Rightarrow \Delta = 0 \Rightarrow a > 0$
 $\Rightarrow b^2 - 4ac \geq 0 \Rightarrow 4 - 4(2-m^2) \geq 0 \Rightarrow m^2 \geq 1 \Rightarrow m = \pm 1 \Rightarrow \text{Circled } P$

الف) $x^2 \geq 0 \Rightarrow x^2 \leq 4 \Rightarrow -2 \leq x \leq 2$
 ب) $[x] + [-x] + 1 \neq 0 \rightarrow [x, -x] \neq -1 \Rightarrow x \in \mathbb{Z}$
 $\Rightarrow Df = \{-2, -1, 0, 1, 2\}$