

14

پاسخنامه تشریحی تکلیف شماره ۳ کلاس ۳

نام و نام خانوادگی:

الف) $y = \frac{x+3}{x(x-1)(x+\frac{1}{x})}$ $D: \mathbb{R} - \{1, -3, \frac{1}{x}\}$ $(x^3 + 3x^2 - x + 3) \div (x-1) = x^2 + 4x - 3 \rightarrow x^2 + \frac{4}{1}x - \frac{3}{1} = (x+3)(x-\frac{1}{x})$ ب) $y = \frac{x+3}{x(x+1)(x+\frac{1}{x})}$ $D: \mathbb{R} - \{-1, -3, -\frac{1}{x}\}$ $(x^3 + 9x^2 + 6x + 3) \div (x+1) = x^2 + 8x + 3 \rightarrow x^2 + \frac{8}{1}x + \frac{3}{1} = (x+3)(x+\frac{1}{x})$	1
الف) $y = \frac{x+3}{(x-1)(x^2-n+1)}$ $\rightarrow D: \mathbb{R} - \{1\}$ $b^2 - 4ac = 1 - 4 < 0 \rightarrow + \infty, -\infty$ ب) $y = \sqrt{\frac{x+3}{(x-1)(x^2-n+1)}}$ $\frac{-3}{+4-\frac{1}{x}+}$ $D = (-\infty, -3] \cup (1, +\infty)$	2
$\begin{cases} n \geq 1 \\ n \leq 1 \end{cases} \rightarrow \begin{cases} x^2 - 5x + 5 - 2n + 5 = x^2 - 7x + 10 = (x-2)(x-5) \\ x^2 + 5x - 5 - 2n + 5 = x^2 + 3x = x(x+3) \end{cases}$ $D = \mathbb{R} - \{-3, 0, 2, 5\}$	3
الف) $2n+1 - n+3 \neq 0 \rightarrow 2n+1 \neq n+3 \rightarrow (2n+1)^2 \neq (n+3)^2$ $4n^2 + 4 + 4n \neq n^2 + 9 + 6n \rightarrow 3n^2 - 2n - 5 \neq 0 \rightarrow n \neq \frac{2 \pm \sqrt{4 - 4(3)(-5)}}{6} = \frac{2 \pm \sqrt{64}}{6}$ $n \neq \frac{2 \pm 8}{6} \rightarrow n \neq \frac{10}{6}, -\frac{1}{3}$ $D: \mathbb{R} - \{\frac{5}{3}, -\frac{1}{3}\}$ ب) $2n+1 - n+3 \geq 0$ $\frac{-\frac{4}{3}}{+4-\frac{1}{x}+}$ $D = (-\infty, -\frac{1}{3}] \cup [\frac{5}{3}, +\infty)$	4
الف) $\log_x^n \rightarrow n > 0$ ① $1 - \log_x^n > 0 \rightarrow \log_x^n < 1 \rightarrow n < 3$ ② $D: \log 2 = (0, 3)$ ب) $\log_{\frac{1}{x}}^n \rightarrow n > 0$ ① $1 - \log_{\frac{1}{x}}^n > 0 \rightarrow \log_{\frac{1}{x}}^n < 1 \rightarrow n > \frac{1}{x}$ $D: \log 2 = (\frac{1}{x}, +\infty)$	5

$\log_a(xn-1) > 0 \rightarrow xn-1 > 1 \rightarrow xn > 2 \quad (1)$ $\log_a(xn-1) < 0 \rightarrow xn-1 < 1 \rightarrow xn < 2 \rightarrow xn > 1 \quad (2)$ $\log_a \log_a(xn-1) > 0 \rightarrow \log_a(xn-1) > 1 \rightarrow xn-1 > a \rightarrow xn > a+1 \rightarrow xn > 4 \rightarrow xn > 5 \quad (3)$ $D = 1 \cap 2 \cap 3 = (1, 5)$	6
ا) $x \cos x + 1 > 0 \rightarrow x \cos x > -1 \rightarrow \cos x > -\frac{1}{x}$ $D = \{x \mid k\pi - \frac{\pi}{x}, x \mid k\pi + \frac{\pi}{x}\}$ ب) $\log \frac{x-1}{x+1} > 0 \rightarrow \frac{x-1}{x+1} > 1 \rightarrow$ لا يمكن $D = \emptyset$ $\frac{x-1}{x+1} < 0 \rightarrow x < -1, x > 1$ $\frac{x-1}{x+1} < 0 \rightarrow x < -1$ $D = (-\infty, -1)$	7
$f(x) = \int -a'(x-r) \rightarrow ax = 0 \rightarrow a = -r$ $-\frac{a'x}{r} + \frac{ra'}{r} = -rx + b \rightarrow a' = r \rightarrow \boxed{b = 4}$	8
$b^2 - 4ac \leq 0 \rightarrow 4 - 4(1)(r-m^2) \leq 0 \xrightarrow{:4} 1 - (r-m^2) \leq 0 \rightarrow -1 + m^2 \leq 0$ $m^2 \leq 1 \rightarrow \boxed{-1 \leq m \leq 1} \rightarrow 1 - (-1) = \boxed{2}$	9
$x - x^2 \geq 0 \rightarrow x^2 \leq x \rightarrow -2 \leq x \leq 2 \rightarrow D = [-2, 2] \quad (1)$ $[x] + [-x] + 1 \neq 0 \rightarrow [x] + [-x] \neq -1 \rightarrow D = \mathbb{Z} \quad (2)$ $D = 1 \cap 2 = [-2, 2]$ معادلة: $x - (-x) + 1 = \boxed{5}$	10