

۱۴,۷۵

باسخنامه تشریحی تکلیف شماره کلاس

دیا اسدبار

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$$y = \frac{x+3}{2x^3+3x^2-11x+3} \rightarrow D_f = \mathbb{R} - \{-1, -9\}$$

$\rightarrow D_f = \mathbb{R} - \{1, \frac{1}{2}, -9\}$

$$y = \frac{x+3}{2x^3+9x^2+10x+3} \rightarrow D_f = \mathbb{R} - \{-1, -9\}$$

$\rightarrow D_f = \mathbb{R} - \{-1, -\frac{1}{2}, -9\}$

$$y = \frac{x+3}{x^3-2x^2+2x-1} \rightarrow D_f = \mathbb{R} - \{-1\} \rightarrow D_g$$

$\rightarrow D_g = \mathbb{R} - \{1\}$

$$y = \sqrt{\frac{x+3}{x^3-2x^2+2x-1}} \rightarrow (-1, +\infty) \cup (-\infty, -3]$$

$$\frac{y}{x^2-2|x-1|-2x+5} = y \rightarrow x \geq 1 \rightarrow x^2-2(x-1)-2x+5$$

$\rightarrow x^2-4x+7$

$\rightarrow x^2+2x+5$

$\rightarrow x^2-2x+5$

$$\frac{x+3}{|2x+1|-|x+3|} \rightarrow \begin{cases} 2x+1 = x+3 \rightarrow x=2 \\ 2x+1 = -x-3 \rightarrow 3x=-4 \rightarrow x=-\frac{4}{3} \\ -2x-1 = x+3 \rightarrow -3x=4 \rightarrow x=-\frac{4}{3} \\ -2x-1 = -x-3 \rightarrow -x=-2 \rightarrow x=2 \end{cases}$$

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

$$\log_2(1-\log_3 x) \rightarrow 1-\log_3 x > 0 \rightarrow 1 > \log_3 x \rightarrow 3 > x$$

$\rightarrow D_f = (0, 3)$

$$\log_2(1-\log_{\frac{1}{2}} x) \rightarrow 1-\log_{\frac{1}{2}} x > 0 \rightarrow 1 > \log_{\frac{1}{2}} x \rightarrow \frac{1}{2} > x$$

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

$$f(x) = \sqrt{\log_{\frac{1}{\Delta}} (\log_{\Delta} (2x-1))} \rightarrow \begin{cases} \log_{\Delta} (2x-1) > 0 \\ 2x-1 > 0 \end{cases} \rightarrow \begin{cases} 2x-1 > 1 \\ x > 1 \end{cases}$$

$(1, +\infty) = D_f$

Handwritten notes: $\log_{\frac{1}{\Delta}} \log_{\Delta} (2x-1) \geq 0 \rightarrow x \leq 1$, $\log_{\frac{1}{\Delta}} \log_{\Delta} (2x-1) \geq 0 \rightarrow x > 1$, $D_f(1, \infty)$

$$y = \log(2\cos x + 1) \rightarrow 2\cos x + 1 > 0 \rightarrow 2\cos x > -1 \rightarrow \cos x > -\frac{1}{2}$$

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

Handwritten notes: $x < -1, x > 1$, $\log_{\frac{x-1}{x+1}} \frac{x-1}{x+1} \geq 0 \rightarrow \frac{x-1}{x+1} \geq 1 \rightarrow \frac{-2}{x+1} \geq 0 \rightarrow x+1 < 0 \rightarrow x < -1$, $D_f(-\infty, -1)$

Unit circle diagram showing $\cos x > -\frac{1}{2}$ for $x \in (-\frac{2\pi}{3}, \frac{2\pi}{3})$.

$$f(x) = \sqrt{(a+x) \cdot 2x + b} \rightarrow \begin{cases} a+x > 0 \\ 2x+b \geq 0 \end{cases}$$

Handwritten notes: $a+x > 0 \rightarrow a = -x$, $-2x+b \geq 0 \rightarrow -2x \geq -b \rightarrow -x \geq -\frac{b}{2} \rightarrow x \leq \frac{b}{2} \rightarrow b = 4$

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

Handwritten notes: $1 + (-1)(2 - m^2) \leq 0 \rightarrow 1 - 2 + m^2 \leq 0 \rightarrow m^2 - 1 \leq 0 \rightarrow m^2 \leq 1 \rightarrow m \in [-1, 1]$

Unit circle diagram showing $m^2 \leq 1$.

$$\sqrt{4-x^2} \rightarrow 4-x^2 \geq 0 \rightarrow x^2 \leq 4 \rightarrow -2 \leq x \leq 2$$

Handwritten notes: $[x] + [-x] + 1 \rightarrow [x] + [-x] \neq (-1) \rightarrow [x] + [-x] \in \mathbb{Z}$

Handwritten notes: $-2, -1, 0, 1, 2 \rightarrow x \in \mathbb{Z}$

$$|p_{n+1}|^r - |p_n|^r \geq \gamma, \quad (n \in \mathbb{N})$$

$$p_n - p_{n-1} \geq \gamma.$$

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