

الف) $y = \frac{x+3}{|2x+1|-|x+3|} \neq 0 \rightarrow |2x+1| \neq |x+3| \xrightarrow{(\cdot)^2} (2x+1)^2 \neq (x+3)^2$

$4x^2 + 4x + 1 \neq x^2 + 6x + 9 \rightarrow 3x^2 - 2x - 8 \neq 0 \rightarrow x^2 - 2x - 24 \neq 0 \quad (x-6)(x+4) \neq 0$

$\hookrightarrow \frac{x}{3} = 2 \hookrightarrow \frac{x}{3} = -4$

$D_f = \mathbb{R} - \left\{ \frac{2}{3}, -\frac{4}{3} \right\}$ جواب

ب) $y = \sqrt{|2x+1|-|x+3|} \geq 0$

$|2x+1| \geq |x+3| \xrightarrow{(\cdot)^2} 4x^2 + 4x + 1 \geq x^2 + 6x + 9$
 $3x^2 - 2x - 8 \geq 0 \rightarrow x^2 - 2x - 24 \geq 0 \rightarrow (x-6)(x+4) \geq 0$
 $\hookrightarrow \frac{x}{3} = 2 \hookrightarrow \frac{x}{3} = -4$

$\frac{-x}{3} \quad 2$
 $+$ $-$ $+$ $-$

$D_f = (-\infty, -\frac{4}{3}] \cup [2, +\infty)$ جواب

$f(x) = \sqrt{\log \log_d^{(x-1)} x} \geq 0$ $2x-1 \geq 2 \rightarrow 2x \geq 3 \rightarrow x \geq \frac{3}{2}$

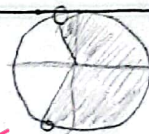
$\log_d^{2x-1} x \geq 0$

$D_f = (1, 3]$ جواب

$\log \log_d^{2x-1} x \geq 0$ $2x-1 \geq 1 \rightarrow 2x \geq 2 \rightarrow x \geq 1$
 $\log_d^{2x-1} x \leq 1 \rightarrow 2x-1 \leq d \rightarrow x \leq 3$

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

$D_f = (2k\pi - \frac{2\pi}{3}, 2k\pi + \frac{2\pi}{3})$ جواب



ب) $y = \sqrt{\log \frac{x-1}{x+1}} \geq 0$ $\frac{x-1}{x+1} \geq 0$ $\frac{-1}{+} \frac{1}{+}$ $(-\infty, -1) \cup (1, +\infty)$

$\log \frac{x-1}{x+1} \geq 0$ $\frac{x-1}{x+1} \geq 1 \rightarrow \frac{x-1}{x+1} - 1 \geq 0 \rightarrow \frac{x-1-x-1}{x+1} \geq 0$ $\frac{-2}{x+1} \geq 0$
 $\hookrightarrow -1$

$D_f = (-\infty, -1)$ جواب