

الف) $\frac{x+3}{(x-1)(x+3)(x-\frac{1}{4})}$ $\checkmark D = \mathbb{R} - \{-3, \frac{1}{4}, 1\}$ (5)

ب) $= \frac{x+3}{(x+1)(x+3)(x+\frac{1}{4})}$ $\checkmark D = \mathbb{R} - \{-3, -1, -\frac{1}{4}\}$

الف) $\frac{x+3}{(x-1)(x^2-x+1)}$ $\checkmark D = \mathbb{R} - \{1\}$ (5)
 مداره مثبت $\Delta < 0 \Rightarrow$

ب) $\sqrt{\frac{x+3}{(x-1)(x^2-x+1)}} \geq 0 \Rightarrow \frac{x+3}{(x-1)(x^2-x+1)} \geq 0$ $D = (-\infty, -3] \cup (1, +\infty)$

x	-3	1
+	0	-
-	0	+

$f(x) = \begin{cases} (x-2)(x-2) & x \geq 1 \\ x(x+3) & x < 1 \end{cases}$ \checkmark (5)

$\begin{cases} x^2 - 4x + 4 - 2x + 2 = x^2 - 6x + 6 = (x-2)(x-2) \\ x^2 + 3x = x(x+3) \end{cases}$

$D = \mathbb{R} - \{-3, 0, 2, 2\}$

الف) $|2x+1| - |x+3| \leq 0$
 $|2x+1| \leq |x+3|$
 $4x^2 + 1 + 4x = x^2 + 9 + 6x$
 $3x^2 - 2x - 8 = 0$
 $(x-2)(x+\frac{4}{3}) = 0$ $\checkmark D = \mathbb{R} - \{-\frac{4}{3}, 2\}$

ب) $|2x+1| - |x+3| \geq 0$
 $(x-2)(x+\frac{4}{3}) \geq 0$

x	$-\frac{4}{3}$	2
+	0	-
-	0	+

 $D = (-\infty, -\frac{4}{3}] \cup [2, +\infty)$ (5)

الف) $x > 0$ $1 - \log_3 x > 0$ $x < 3$ $\Rightarrow D = (0, 3)$ (5)

ب) $x > 0$ $1 - \log_{\frac{1}{7}} x > 0$ $x > \frac{1}{7}$ $\Rightarrow D = (\frac{1}{7}, +\infty)$

$$2x-1 > 0$$

$$x > \frac{1}{2}$$

①

$$\log_a^{2x-1} > 0$$

$$2x-1 > 1$$

$$2x > 2$$

$$x > 1$$

②

$$\log_{\frac{1}{2}} \log_a^{2x-1} > 0$$

$$\log_a^{2x-1} < 1$$

$$2x-1 < a$$

$$2x \leq 6$$

$$x \leq 3$$

③

$$\textcircled{1}, \textcircled{2}, \textcircled{3} \Rightarrow D = (1, 3]$$

5

الف) $2\cos x + 1 > 0$

$$\cos x > -\frac{1}{2}$$

$$D = \{x \mid x \in (\frac{4\pi}{3}, \frac{5\pi}{3}) \cup (\frac{7\pi}{3}, 2\pi)\}$$

1, 0

ب) $\frac{x-1}{x+1} > 0$

$$\frac{-1}{+} \frac{1}{-} = +$$

$$\log(\frac{x-1}{x+1}) > 0$$

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

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

$$\frac{-2}{x+1} > 0$$

$$x > -1$$

$$D = [1, +\infty)$$

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

$$a+2=0$$

$$a=-2 \Rightarrow f(x) = \sqrt{-2x+b}$$

$$-2(2)+b=0$$

$$b=4$$

5

$$\Delta \leq 0 \quad \checkmark \quad a > 0 \quad \checkmark$$

$$4 - 4(1-m^2) \leq 0$$

$$1 - 2 + m^2 \leq 0$$

$$m^2 \leq 1$$

$$m \in [-1, 1] \Rightarrow 1 - (-1) = 2$$

$$4-x^2 > 0$$

$$x^2 < 4$$

$$-2 < x < 2$$

$$[x] + [-x] + 1 \neq 0$$

$$[x] + [-x] = -1$$

$$x \in (0, 1) \cup (2, 3) \quad \checkmark$$

$$D = [-2, 2] \cap ((-\infty, 0] \cup [1, +\infty)) = [-2, 0] \cup [1, 2]$$

اعداد صحيحه $\leq 1, 2, 0, -1, -2$

$$D = \{0, 1, 2\}$$