

①

$$9a - 11 + 3a + b = 0$$

$$b = -12a + 11 \rightarrow b = -24 + 11 = -13$$

$$a - 2 = 0$$

$$a = 2$$

②

$$\Delta \leq 0$$

$$f = -\frac{1}{2} + 2m' \leq 0$$

$$2m' \leq \frac{1}{2}$$

$$m' \leq \frac{1}{4}$$

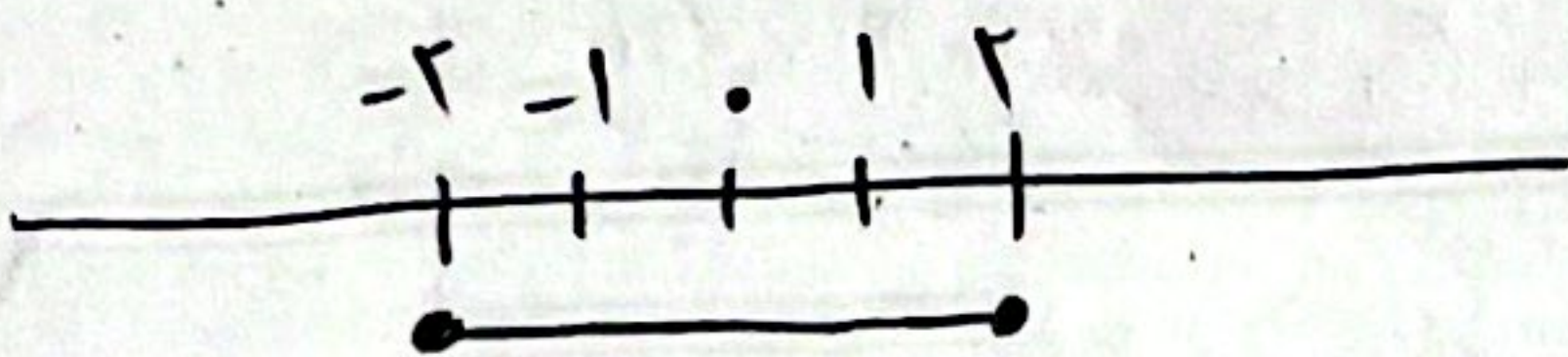
$$-1 \leq m \leq 1$$

$$\Delta = 1 + 1 = 2$$

$$f - x^2 \geq 0$$

$$x^2 \leq f$$

$$-2 \leq x \leq 2$$



$$x \in \mathbb{Z} \rightarrow [x] + [-x] = 0$$

$$x \notin \mathbb{Z} \rightarrow [x] + [-x] = -1$$

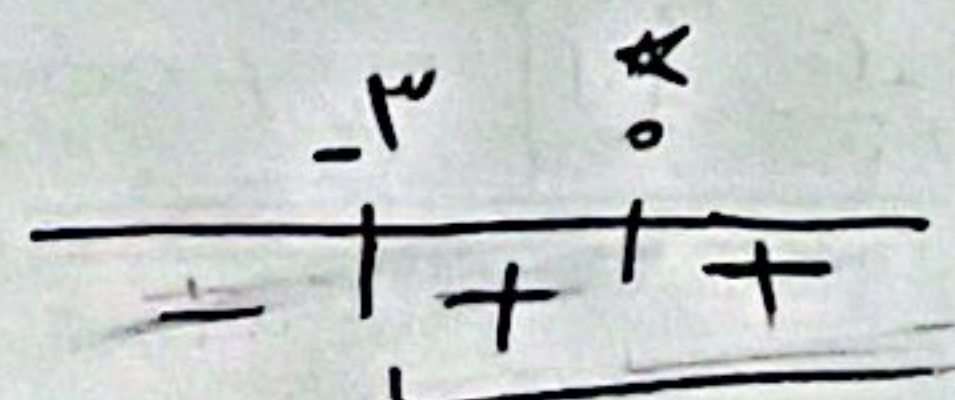
③

عدد صحیح

④

الف) $x^3 + 3x^2 \geq 0$

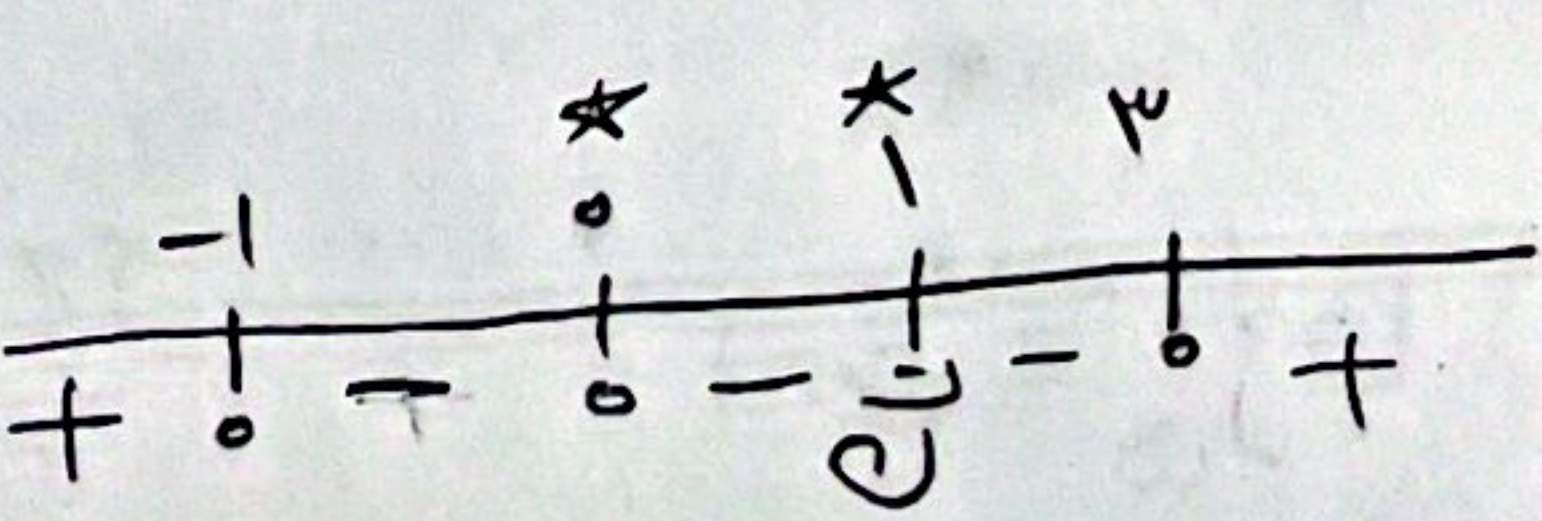
$$x^2(x + 3) \geq 0$$



$$D_f = [-3, +\infty) \cup \{0\}$$

ب) $\frac{(x^2 - 1)(x^3 - 3x^2)}{x^3 - 1} \geq 0$

$x = 1, -1$ $x = 0, 3$



$$D_f = (-\infty, 1] \cup \{0\} \cup [3, +\infty)$$

⑤

الف) $|x - 2| \geq 3 \xrightarrow{U} x - 2 \geq 3$

$$x \geq 5$$

$$x - 2 \leq -3$$

$$x \leq -1$$

$$D_f = (-\infty, -1] \cup [5, +\infty)$$

ب) $|2 - x| \leq 4 \xrightarrow{U} -4 \leq 2 - x \leq 4$

$$x \leq 6$$

$$x \geq -2$$

$$D_f = [-2, 6]$$

الف) $1 - x/|x| \geq 0 \xrightarrow{U} x \geq 0$

$$1 - x^2 \geq 0$$

$$x^2 \leq 1$$

$$-1 \leq x \leq 1$$

$$I \cap II \rightarrow [0, 1]$$

ب) $x < 0$

$$1 + x^2 \geq 0$$

$$x^2 \geq -1 \rightarrow \text{همواره برقرار}$$

$$I \cap II = (-\infty, 0)$$

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

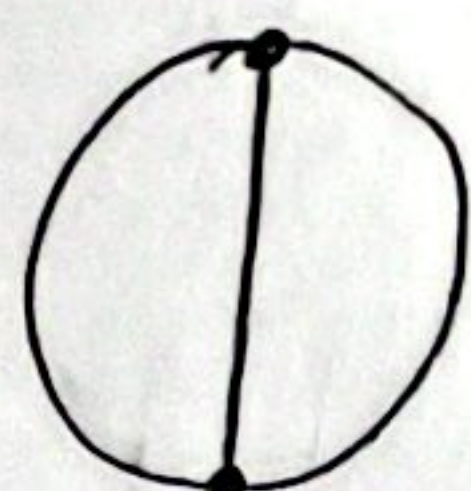
⑥

ب) $|x - \omega| - 1 > 0$
 $|x - \omega| < 2$
 $-2 < x - \omega < 2$
 $x < \omega + 2$
 $x > \omega - 2$

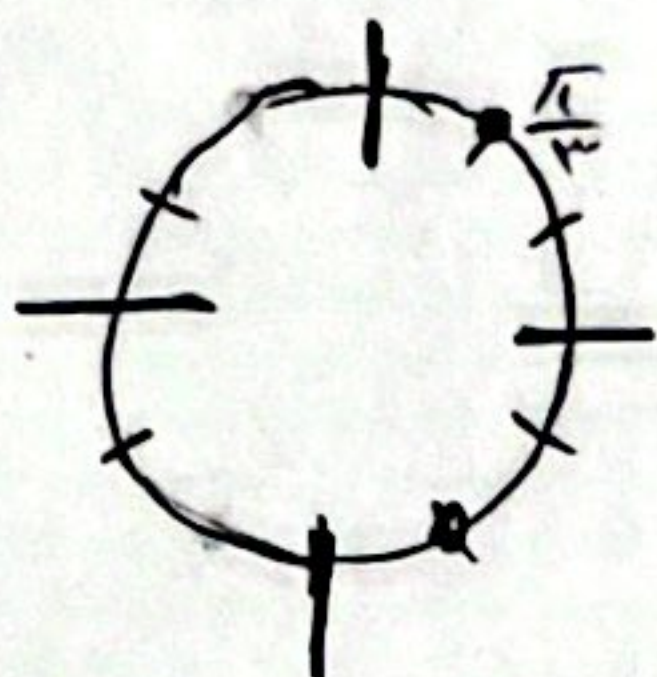
$$D_f = (3, 7)$$

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الف) $\cos x \neq 0$ $D_f = \mathbb{R} - \{k\pi + \frac{\pi}{2}\}$

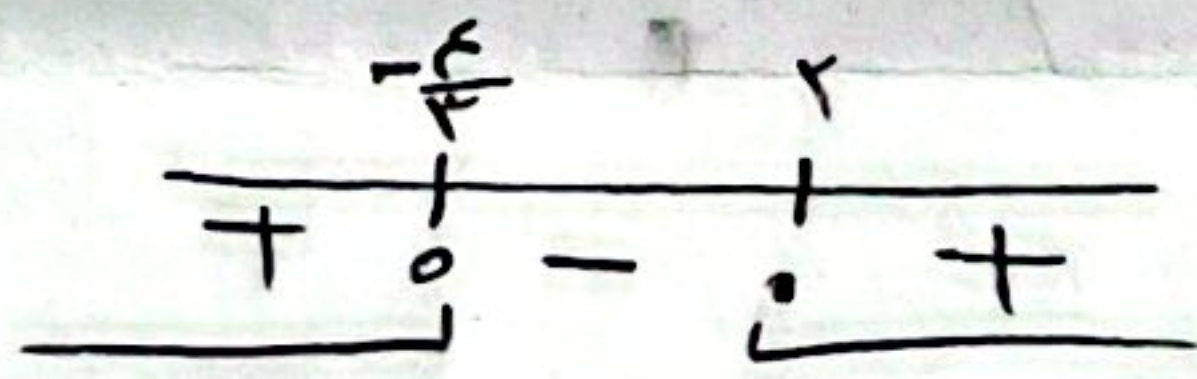


ب) $\cos x \neq \frac{1}{2}$ $D_f = \mathbb{R} - \{2k\pi \pm \frac{\pi}{3}\}$



الف) $|2x+1| \neq |x+3| \rightarrow$ $2x^2 + 1 + 4x \neq x^2 + 9 + 6x$
 $x^2 - 2x - 8 \neq 0$
 $\Delta = 4 + 32 = 36$
 $x = \frac{2 \pm 6}{2} = 4, -2$

ب) $|2x+1| \geq |x+3| \rightarrow$ $2x^2 + 1 + 4x \geq x^2 + 9 + 6x$
 $x^2 - 2x - 8 \geq 0$



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

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

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$\log_{0.15}^{(2x-1)} \geq 0$

$\log_{\omega}^{(2x-1)} \geq 1$

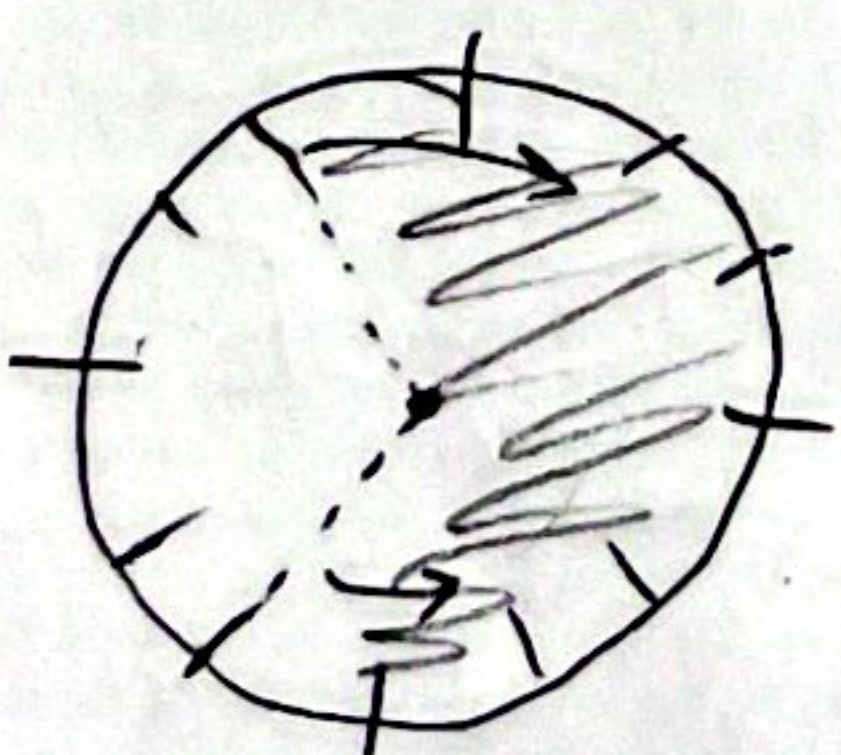
$2x-1 > 0$
 $x > \frac{1}{2}$

$2x-1 \geq \omega$
 $x \geq 3$

$\mathbb{N} \cap \mathbb{I} \rightarrow D_f = [3, +\infty)$

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

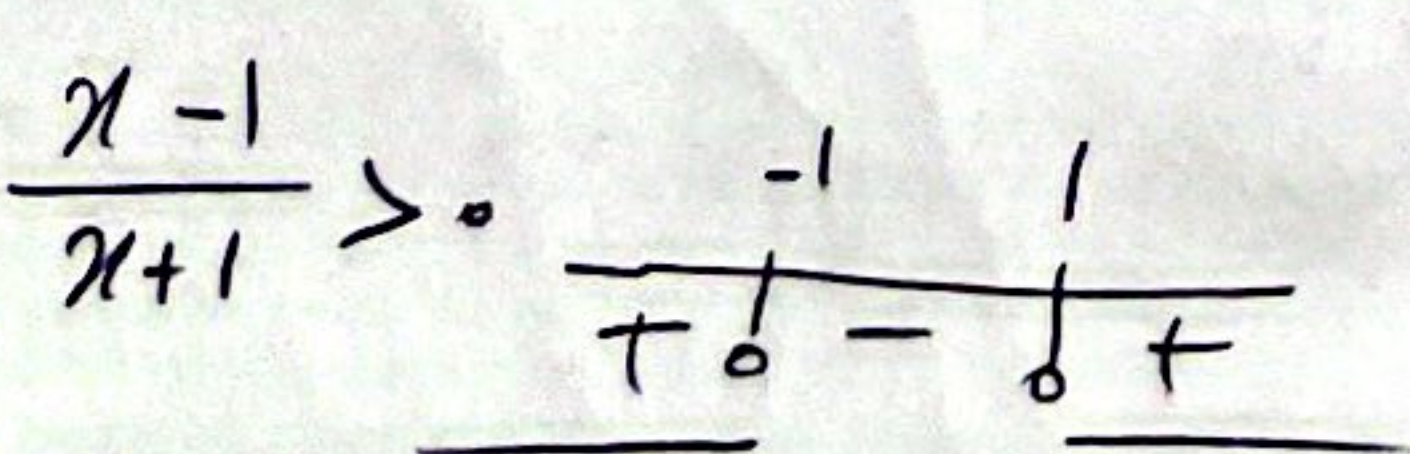


$$D_f = (2k\pi - \frac{2\pi}{3}, 2k\pi + \frac{2\pi}{3})$$

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ب) $\frac{x-1}{x+1} \geq 1$

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



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