

$$2x + b = 4$$

۱) با توجه به دامنه معادله خواست $a = 2$

$$4 + b = 0 \Rightarrow b = -4$$

$$\left. \begin{aligned} \varepsilon - 1 + \varepsilon m^2 &= \varepsilon m^2 - \varepsilon \\ \varepsilon m^2 - \varepsilon &\rightarrow \text{باید منفی باشد یا صفر} \end{aligned} \right\} \begin{aligned} \varepsilon m^2 - \varepsilon &= 0 \Rightarrow m = 1, -1 \\ \varepsilon m^2 - \varepsilon &< 0 \Rightarrow m = 0 \end{aligned} \quad (2)$$

کمترین مقدار $\rightarrow m = 0$

بزرگترین m $\rightarrow m = 1, -1$

$$\left. \begin{aligned} \varepsilon - x^2 &\geq 0 \\ x^2 &\leq \varepsilon \end{aligned} \right\} \Rightarrow x = [-2, 2]$$

۳) در خروج فقط اعداد صحیح کار میکند

۴) شامل ۰ عدد صحیح است

$$x^2 + 2x^2 \geq 0 \Rightarrow x^2(x+2) \geq 0 \Rightarrow \frac{-2}{+} \frac{0}{-} \frac{+}{+} \quad (4) \text{ الف}$$

$$x = (-\infty, -2] \cup [0, +\infty)$$

$$\left. \begin{aligned} x^2 - 1 &= 0 \Rightarrow x = 1, -1 \\ x^2(x-2) &= 0 \Rightarrow x = 0, 2 \\ x^2 - 1 &= 0 \Rightarrow x = 1 \end{aligned} \right\} \Rightarrow \frac{-2}{-} \frac{-1}{+} \frac{0}{-} \frac{1}{+} \Rightarrow x = [-2, -1] \cup [0, +\infty) - \{1\} \quad (5) \text{ ب}$$

$$\left. \begin{aligned} x-2 &\geq 2 \Rightarrow x \geq 4 \\ 2-x &\geq 2 \Rightarrow x \leq -1 \end{aligned} \right\} \Rightarrow x = (-\infty, -1] \cup [4, +\infty) \quad (6) \text{ الف}$$

$$\left. \begin{aligned} 2-x &\leq \varepsilon \Rightarrow x \geq -2 \\ x-2 &\leq \varepsilon \Rightarrow x \leq 4 \end{aligned} \right\} \Rightarrow x = [-2, 4] \quad (7) \text{ ب}$$

۶) الف) اگر x منفی باشد حاصل $|x|$ منفی است و اگر مثبت باشد مثبت است $|x| \leq 1$

$$x \leq 1$$

$$2 - |x-4| - 1 > 0 \Rightarrow 2 - |x-4| > 0$$

$$\left. \begin{aligned} x-4 &< 2 \Rightarrow x < 6 \\ 4-x &< 2 \Rightarrow x > 2 \end{aligned} \right\} \Rightarrow x = (2, 6)$$

$$\cos x \neq 0 \Rightarrow D_f = \mathbb{R} - \left\{ \pi + \frac{\pi}{2} \right\} \quad (\text{الف})$$

$$\left. \begin{array}{l} \cos x \neq 1 \\ \cos x \neq \frac{1}{2} \end{array} \right\} \Rightarrow D_f = \mathbb{R} - \left\{ \frac{\pi}{2}, \frac{5\pi}{2} \right\} \quad (\text{ب})$$

$$|x+1| = |x+2| \Rightarrow x^2 + \varepsilon x + 1 = x^2 + 4x + 4 \Rightarrow x^2 - 2x - 1 = 0 \quad (\text{الف})$$

$$\Rightarrow (x-2)(x+1) = 0 \Rightarrow x = 2, -1 \Rightarrow D_f = \mathbb{R} - \{2, -1\}$$

$$|x+1| = |x+2| \Rightarrow x^2 + \varepsilon x + 1 = x^2 + 4x + 4 \Rightarrow x^2 - 2x - 1 = 0$$

$$\Rightarrow (x-2)(x+1) = 0 \Rightarrow \frac{-2}{+ \phi - \phi +} \Rightarrow D_f = (-\infty, -1] \cup [2, +\infty) \quad (\text{ب})$$

$$x-1 > 0 \Rightarrow x > 1 \quad (9)$$

$$\log_a(x-1) > 0 \Rightarrow x-1 > 1 \Rightarrow x > 2$$

$$\log_{a,a}(\log_a(x-1)) \geq 0 \Rightarrow \log_a(x-1) \geq 1 \Rightarrow x-1 \geq a \Rightarrow x \geq 2$$

$$x \cos x + 1 > 0 \Rightarrow x \cos x > -1 \Rightarrow \cos x > -\frac{1}{x} \quad (10) \text{ الف}$$

$$\Rightarrow D_f = \left(\frac{\varepsilon \pi}{2}, \frac{\pi}{2} \right)$$

$$\frac{x-1}{x+1} > 0 \Rightarrow x > 1, x < -1 \Rightarrow D_f = (-\infty, -1) \cup (1, +\infty) \quad (\text{ب})$$