

الف) $1 - 2m^2 + m^4 \geq 0 \Rightarrow 1 - 2m^2 + m^4 \geq 0$ $\Rightarrow (m^2 - 1)^2 \geq 0$ $\checkmark$ تابع است $\checkmark$ $0 \leq \sqrt{2m^2 + 2m - 1}$	ب) $m^2 + 2m + 2 \geq 0 \Rightarrow (m+1)^2 + 1 \geq 0$ $\Rightarrow (m+1)^2 \geq -1$ $\checkmark$ تابع است $\checkmark$ $0 \leq \sqrt{2m^2 + 2m - 1}$	۱
ب) $\frac{m^2}{2} + k \geq 0 \Rightarrow \frac{m^2}{2} + k \geq 0$ $\Rightarrow \frac{m^2}{2} + k \geq 0$ $\checkmark$ تابع نیست $\checkmark$	ب) $m^2 + 2m + 2 \geq 0 \Rightarrow (m+1)^2 + 1 \geq 0$ $\Rightarrow (m+1)^2 \geq -1$ $\checkmark$ تابع است $\checkmark$ $0 \leq \sqrt{2m^2 + 2m - 1}$	۲
الف) $1 + m^2 = 2x \Rightarrow x = \frac{1+m^2}{2}$ $\Rightarrow x \geq \frac{1}{2}$ $\checkmark$ تابع است $\checkmark$ $\Rightarrow x \geq \frac{1}{2}$ $\checkmark$ تابع است $\checkmark$	ب) $[x] + [y] = 1 \Rightarrow [x] = 1 - [y]$ $\Rightarrow [x] = 1 - [y]$ $\checkmark$ تابع است $\checkmark$	۳
الف) $\begin{cases} 1 + m^2 - b & m > 1 \\ m + 2m & 0 \leq m \leq 3 \end{cases}$ $\Rightarrow m - 1 \geq 2 \Rightarrow m \geq 3$ $\Rightarrow m - 1 \leq -2 \Rightarrow m \leq -1$	ب) $\begin{cases} 1 + m^2 - b & m > 3 \\ m + 2m & m \leq -1 \end{cases}$ $\Rightarrow 1 + m^2 - b \leq m + 2m = 1 + m^2$ $\Rightarrow 1 + m^2 - b \leq 1 + m^2$ $\Rightarrow -b \leq 0 \Rightarrow b \geq 0$ $\checkmark$	۴
الف) $m^2 + b \geq 0 \Rightarrow m^2 + b \geq 0$ $\Rightarrow m^2 + b \geq 0$ $\checkmark$ تابع است $\checkmark$ $\Rightarrow m^2 + b \geq 0$ $\checkmark$ تابع است $\checkmark$	ب) $m^2 + b \geq 0 \Rightarrow m^2 + b \geq 0$ $\Rightarrow m^2 + b \geq 0$ $\checkmark$ تابع است $\checkmark$ $\Rightarrow m^2 + b \geq 0$ $\checkmark$ تابع است $\checkmark$	۵
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$$x^2 + y^2 - z^2 = 0 \rightarrow (x^2 - z^2) + (y^2) = 0 \quad (> 1)$$

$$x^2 (x-y) + y^2 (x-y) = 0 \rightarrow x-y (x^2 + y^2) = 0$$

SANA

$$\left. \begin{array}{l} x^2 + y^2 > 0 \\ x - y = 0 \end{array} \right\} \rightarrow x = y$$

تابع است

$$\frac{r^2 + 1}{x + b} + a = 1, b = 0 \rightarrow b = -1 \checkmark$$

$$a; \text{ and } 0 < a < 1, b = -1$$

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$$\text{مثال 1) } 2 \cdot \sqrt{x^2 - a} - x^2 - a \geq 0 \quad x(x^2 - 1) \geq 0 \rightarrow x(x-1)(x+1) \geq 0$$

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

$$D = [-1, 0] \cup [1, \infty) \checkmark$$

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$$\text{مثال 2) } \frac{1}{\sqrt{|x|-1}} \quad |x|-1 > 0 \rightarrow |x| > 1 \rightarrow x > 1 \text{ or } x < -1 \quad D = (-\infty, -1) \cup (1, \infty) \checkmark$$

$$\text{مثال 3) } z = \sqrt{\frac{1}{|x|-[x]}} \quad |x| - [x] \neq 0 \quad |x| \neq [x] \rightarrow D = \mathbb{R} - \mathbb{Z} \checkmark$$

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$$\text{مثال 4) } \sqrt{x} + \sqrt{2} = 9 \quad x \geq 0$$

$$\sqrt{2} \geq 0$$

$$\sqrt{2} = 9 - \sqrt{x} \rightarrow 9 - \sqrt{x} \geq 0 \rightarrow 9 \geq \sqrt{x} \rightarrow 81 \geq x \rightarrow D = [0, 81] \checkmark$$

$$\frac{1}{\sqrt{[x - \frac{1}{p}] + [x + \frac{p}{p}]}} \quad [x - \frac{1}{p}] + [x + \frac{p}{p}] \geq 0 \rightarrow [x - \frac{1}{p}] + [x - \frac{1}{p}] + 1 \geq 0$$

$$2[x - \frac{1}{p}] \geq -1 \quad [x - \frac{1}{p}] \geq -\frac{1}{2} \rightarrow x - \frac{1}{p} \geq -\frac{1}{2} \rightarrow x \geq \frac{1}{p} - \frac{1}{2}$$

$$D = [\frac{1}{p}, \infty) \checkmark$$

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$$\sqrt{1 - \log_2(x - a)} \quad x - a > 0 \quad x > a$$

$$1 - \log_2(x - a) \geq 0 \quad 1 \geq \log_2(x - a) \rightarrow x - a \leq 1 \rightarrow x \leq 1 + a$$

$$D = (\frac{a}{p}, \frac{1+a}{p}] \rightarrow b = \frac{a}{p} \quad c = \frac{1+a}{p}$$

$$\frac{1+a}{p} - \frac{a}{p} = \frac{1+a-a}{p} = \frac{1}{p} = d \checkmark$$

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