

الف) $m^2 - 5m - 4 = 0 \rightarrow m^2 - 5m - 4 = 0 \rightarrow (m-9)(m+4) = 0$
 $m = 9$ یا $m = -4$
 ب) $m^2 - 11m - 4 = 0 \rightarrow m^2 - 11m - 4 = 0 \rightarrow (m-9)(m+1) = 0$
 $m = 9$ یا $m = -1$
 ج) $m^2 - 6m - 12 = 0 \rightarrow m^2 - 6m - 12 = 0 \rightarrow (m-9)(m+2) = 0$
 $m = 9$ یا $m = -2$
 د) $m^2 - 5m - 12 = 0 \rightarrow m^2 - 5m - 12 = 0 \rightarrow (m-8)(m+3) = 0$
 $m = 8$ یا $m = -3$

$m^2 - 5m + 4 = 0 \rightarrow (m-4)(m-1) = 0 \rightarrow m = 4$ یا $m = 1$
 $m^2 + 5m + 4 = 0 \rightarrow (m+4)(m+1) = 0 \rightarrow m = -4$ یا $m = -1$
 $m^2 + 2m + 4 = 0 \rightarrow \Delta = 4 - 16 = -12 < 0$ ریشه ندارد
 $m^2 + 3m - 2 = 0 \rightarrow \Delta = 9 - 4(-2)(3) = 33 > 0$
 $m = \frac{-3 \pm \sqrt{33}}{2}$

$A = \{1, 2, 3\}$ $B = \{2, 3\}$ $A \times B = (B \times B)$?
 $A \times B = \{(1, 2), (1, 3), (2, 2), (2, 3), (3, 2), (3, 3)\}$
 $B \times B = \{(2, 2), (2, 3), (3, 2), (3, 3)\}$
 $A \times B = B^2$
 اشتباه

الف) $f(m) = \{(3, 1), (2, 1), (-3, -1), (-2, -1), (3, 1), (-1, 4), (m, 4)\}$
 $m^2 = m + 2 \rightarrow (m-2)(m+1) = 0$
 $m^2 - m - 2 = 0 \rightarrow m = 2$ یا $m = -1$
 $m = 2 \rightarrow (3, 4), (2, 1), (2, 4), (4, 4), (-2, 4), (-1, 4)$
 $m = -1 \rightarrow (3, 1), (2, 1), (-1, 4), (-2, 4), (2, 1), (-2, 4)$
 ب) $g(m) = \{(3, m^2), (2, 1), (m, 4), (3, m+2), (-2, m), (-1, 4)\}$
 $m^2 = m + 2 \rightarrow m^2 - m - 2 = 0 \rightarrow (m-2)(m+1) = 0$
 هجده صورتی که به شرح زیر

$f(a) = \{(1, a^2), (1, 3a-2), (a^2, 3a+2)\}$
 $a^2 = 3a - 2$
 $a^2 - 3a + 2 = 0$
 $(a-2)(a-1) = 0$
 $a = 2$ یا $a = 1$
 سبب داری ۲۰
 سبب نبودن ۲۰
 سبب نبودن ۲۰

$$f(n) = \begin{cases} n^2 - 1 & n \leq 1 \\ a + b & 1 \leq n \leq r \\ n^2 & n \geq r \end{cases}$$

$$1 - 1 = a + b \Rightarrow a + b = 0 \quad \#$$

$$ra + b = 1$$

$$\begin{cases} ra + b = 1 \\ a + b = 0 \end{cases}$$

$$a = 1$$

$$a + b = -42$$

$$b = -1$$

$$f(n) = \begin{cases} r_n - r & n \geq k \\ \varepsilon - r_n & n \leq k \end{cases}$$

$$r_k - r = \varepsilon - r_k$$

$$2r_k = \varepsilon$$

$$k = \frac{\varepsilon}{2} = 1.5$$

$$y^2 - 4y = n^2 - \varepsilon n + 2 \quad \text{تابع } y = \sqrt{(n-2)(n-11) + 4y} \rightarrow \text{دو طرفه}$$

$$|n| + |y| = 3 \rightarrow n = 1 \rightarrow |y| = 2 \rightarrow y = \pm 2 \quad \text{تابع}$$

$$|y| = \sqrt{1 - \cos 2} \rightarrow \cos 2 = \frac{1}{2} \rightarrow |y| = \sqrt{1} \rightarrow y = \pm 1 \quad \text{تابع}$$

$$y^2 + n^2 + 2n + 1 = 0 \quad y^2 + (n+1)^2 = 0 \quad \text{بسیار مهم} \rightarrow y = 0, n = -1 \quad \text{تابع}$$

$$\sqrt{y + n^2} = k - 2 \quad \begin{cases} \textcircled{1} \sqrt{y_1} = -n^2 + 2n - 2 \\ \textcircled{2} \sqrt{y_2} = -n^2 + 2n - 2 \end{cases} \Rightarrow \sqrt{y_1} = \sqrt{y_2} \rightarrow y_1 = y_2 \quad \text{تابع}$$

$$\begin{cases} y_1^2 + y_2^2 = 4n \\ y_1^2 + y_2^2 = 4n \end{cases} \quad y_1^2 + y_2^2 = y_2^2 + 2y_2 \quad y_1^2 - y_2^2 = 2y_2 - 2y_1 \quad (y_1 - y_2)(y_1^2 + y_1 y_2 + y_2^2) = -2(y_1 - y_2)$$

$$(y_1 - y_2)(y_1^2 + y_1 y_2 + y_2^2 + 2) = 0 \quad y_1 = y_2 \quad y_1^2 + y_2^2 + y_2^2 + 2 = 0 \quad y_1 = -y_2 \pm \sqrt{\Delta}$$

$$\Delta = y_1^2 - 4y_2^2 - 4 = -4y_2^2 - 4 \Rightarrow \Delta < 0 \quad \text{پس ندارد} \rightarrow y_1 = y_2 \quad \text{تابع}$$

$$n \sin y = y \sin n \rightarrow \text{تابع} \quad \text{میان } n \text{ و } y \quad \text{متقارن باشد}$$

$$\sqrt{\frac{n}{y}} + \sqrt{\frac{y}{n}} = 2 \quad \frac{n}{y} + \frac{y}{n} + 2\sqrt{\frac{n}{y} \cdot \frac{y}{n}} = 4 \rightarrow \frac{n}{y} + \frac{y}{n} = 2$$

$$n^2 + y^2 = 2ny \rightarrow n^2 + y^2 - 2ny = 0 \quad \text{تابع}$$

$$(n - y)^2 = 0 \rightarrow n = y$$

شماره ۰ و ۰ یادت بره!

(۱۰-ب) $\sqrt{\frac{x}{y}} + \sqrt{\frac{y}{x}} = 2$

این عبارت تنها زمانی به قدر است که $\sqrt{\frac{x}{y}} = 1$ باشد پس

$\sqrt{\frac{x}{y}} = 1 \leadsto \frac{x}{y} = 1 \leadsto x = y$ و $(x, y \neq 0)$

