

الف) $2m^2 - 5m - 4 = 0 \rightarrow m^2 - 5m - 4 = 0 \rightarrow (m-9)(m+4) = 0$
 $m = 9$ یا $m = -4$

ب) $2m^2 - 11m - 4 = 0 \rightarrow m^2 - 11m - 4 = 0 \rightarrow (m-9)(m+1) = 0$
 $m = 9$ یا $m = -1$

ج) $2m^2 - 11m - 4 = 0 \rightarrow m^2 - 11m - 4 = 0 \rightarrow (m-9)(m+1) = 0$
 $m = 9$ یا $m = -1$

د) $2m^2 - 5m - 4 = 0 \rightarrow m^2 - 5m - 4 = 0 \rightarrow (m-9)(m+4) = 0$
 $m = 9$ یا $m = -4$

$m^2 - 5m + 4 = 0 \rightarrow (m-4)(m-1) = 0 \rightarrow m = 4$ یا $m = 1$

$2m^2 + 5m + 4 = 0 \rightarrow m^2 + 5m + 4 = 0 \rightarrow (m+4)(m+1) = 0$
 $m = -4$ یا $m = -1$

$m^2 + 2m + 4 = 0 \rightarrow \Delta = 4 - 16 = -12 < 0$ ریشه ندارد

$2m^2 + 3m - 2 = 0 \rightarrow \Delta = 9 - 4(-2)(2) = 33 > 0$
 $m = \frac{-3 \pm \sqrt{33}}{4}$

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

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

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

شکل:

الف) $f(m) = \{(3, 1), (2, 1), (-3, -1), (-2, -1), (3, 1), (-1, 4), (m, 4)\}$

$m^2 = m + 2 \rightarrow m^2 - m - 2 = 0 \rightarrow (m-2)(m+1) = 0$
 $m = 2$ 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) $g(m) = \{(3, m^2), (2, 1), (m, 4), (3, m+2), (-2, m), (-1, 4)\}$

$m^2 = m + 2 \rightarrow m^2 - m - 2 = 0 \rightarrow (m-2)(m+1) = 0$
 $m = 2$ یا $m = -1$

د هجیع صورتی بیجی نشود

$f(a) = \{(1, a^2), (1, 3a-2), (a^2, 3a+2)\}$

$a^2 = 3a - 2$
 $a^2 - 3a + 2 = 0$
 $(a-2)(a-1) = 0$
 $a = 2$ یا $a = 1$

سبب داری $a = 2$ بیجی نشود

سبب داری $a = 1$ بیجی نشود

سبب داری $a = 1$ بیجی نشود

سبب داری $a = 2$ بیجی نشود

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

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

$$ra + b = 1$$

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

$$a = 1$$

$$b = -1$$

$$a + b = -98$$

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

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

$$2r_k = \varepsilon$$

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

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

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

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

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

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

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

$$y_1 = y_2 \quad \Delta = y_1^2 - \varepsilon(y_1^2 + 2) = 0 \quad \Delta = y_1^2 - \varepsilon y_1^2 - 2\varepsilon = 0 \Rightarrow \Delta < 0 \quad \text{پس ندارد} \rightarrow y_1 = y_2 \quad \text{تابع است}$$

$$n \sin y = y \sin n \rightarrow \text{تابع نیست} \quad \text{میان } n \text{ و } y \quad \text{مرتبه نباشد}$$

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

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