

۲. آمیزش

الف) $4x^2 - 5x - 4 = 0 \rightarrow x^2 - 5x - 4 = 0 \rightarrow (x + \frac{5}{2})(x - \frac{9}{2}) = 0 \rightarrow x = -\frac{5}{2}, \frac{9}{2}$
 ب) $3x^2 - 11x - 3 = 0 \rightarrow x^2 - 11x - 9 = 0 \rightarrow (x + 1)(x - 9) = 0 \rightarrow x = -1, 9$
 ج) $4x^2 - 2x - 3 = 0 \rightarrow x^2 - 2x - 3 = 0 \rightarrow (x + 1)(x - 3) = 0 \rightarrow x = -1, 3$
 د) $2x^2 - 8x - 12 = 0 \rightarrow x^2 - 8x - 12 = 0 \rightarrow (x + 3)(x - 4) = 0 \rightarrow x = -3, 4$

الف) $x^2 - 8x - 12 = 0 \rightarrow (x + 2)(x - 4) = 0 \rightarrow x = -2, 4$
 ب) $2x^2 + 8x + 6 = 0 \rightarrow x^2 + 8x + 4 = 0 \rightarrow (x + 2)(x + 2) = 0 \rightarrow x = -2, -2$
 ج) $x^2 + 2x + 3 = 0 \rightarrow x^2 + 2x + 1 = 0 \rightarrow (x + 1)^2 + 2 = 0 \rightarrow (x + 1)^2 = -2 \rightarrow$ ندارد
 د) $3x^2 + 4x - 2 = 0 \rightarrow \Delta = 9 - 2(3)(-2) = 33 \rightarrow x = \frac{-4 \pm \sqrt{33}}{6}$

$A = \{1, 2, 3\}$ و $B = \{2, 3\} \rightarrow A \times B - B^2 = ?$

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

الف) $f(n) = \{(3, m), (2, 1), (-3, m), (-2, m), (3, m+2), (m, 2)\}$
 $m^2 = m + 2 \rightarrow m^2 - m - 2 = 0 \rightarrow a + c = b \rightarrow (1, 2), (2, 1), (3, -1), (-3, -1), (3, 1), (-1, 2)$
 ب) $g(n) = \{(3, m^2), (2, 1), (m, 2), (3, m+2), (-2, m), (-3, 2)\}$
 $m^2 = m + 2 \rightarrow (1, 2), (-1, 2), (-1, 2) \rightarrow \bar{0} \bar{0} \bar{2}$
 $(2, 1), (2, 1) \rightarrow \bar{0} \bar{0} \bar{2}$
 $(3, 2), (3, 2) \rightarrow \bar{0} \bar{0} \bar{2}$

$f(n) = \{(1, a^2), (1, 3a-2), (a^2, 3a+2)\}$
 $a^2 = 3a - 2 \rightarrow a^2 - 3a + 2 = 0 \rightarrow a + b + c = 0 \rightarrow (1, 1), (1, 1), (1, 0) \rightarrow \bar{0} \bar{0} \bar{2}$
 $(1, 2), (1, 2), (2, 1) \rightarrow (0, 0)$
 ب) $\bar{0} \bar{0} \bar{2}$

$$f(n) = \begin{cases} n^2 - 1 & n \leq 1 \\ an + b & 1 \leq n \leq 2 \\ n^2 & n \geq 2 \end{cases} \quad \text{①} \rightarrow x = a + b \rightarrow \boxed{a = -b}$$

$$a \times b \rightarrow n \times (-1) = \boxed{-42} \quad \text{②} \rightarrow \boxed{a = 1} \rightarrow \boxed{b = -1}$$

$$f(n) = \begin{cases} 2n - 2 & n \geq k \\ 2 - 2n & n \leq k \end{cases} \rightarrow 2k - 2 = 2 - 2k$$

$$2k = 4 \rightarrow k = 2$$

$$\text{الف) } y^3 - 4y = x^2 - 2x + 3 \rightarrow y^3 - 4y + 9 = x^2 - 2x + 12 \rightarrow (y+3)^2 = x^2 - 2x + 12 \rightarrow y+3 = \pm \sqrt{x^2 - 2x + 12}$$

$$\Delta = 14 - 2(1)(12) = -14 \rightarrow \text{no real solution}$$

$$\text{ب) } y^2 + x^2 + 2x + 1 = 0 \rightarrow y^2 + (x+1)^2 = 0 \rightarrow y = 0, x = -1$$

$$\text{ج) } y^2 + x^2 = 2x - 2 \rightarrow y^2 + x^2 - 2x + 2 = 0 \rightarrow (x-1)^2 + y^2 = 0 \rightarrow x = 1, y = 0$$

$$\text{د) } y^2 + 2y = 0 \rightarrow y(y+2) = 0 \rightarrow y = 0 \text{ or } y = -2$$

$$\text{ه) } n \sin y = y \sin x \rightarrow n = 0 \rightarrow 0 = y \times \sin(0) \rightarrow y = 0$$

$$\text{و) } \sqrt{\frac{n}{y}} + \sqrt{\frac{y}{n}} = 2 \rightarrow t + \frac{1}{t} = 2 \rightarrow t^2 + 1 = 2t \rightarrow t^2 - 2t + 1 = 0 \rightarrow (t-1)^2 = 0 \rightarrow t = 1 \rightarrow \sqrt{\frac{n}{y}} = 1 \rightarrow \frac{n}{y} = 1 \rightarrow n = y$$

$$\sqrt{\frac{n}{y}} = 1 \rightarrow \frac{n}{y} = 1 \rightarrow n = y$$