

نام و نام خانوادگی آیین پاسخنامه تشریحی تکلیف شماره کلاس تاریخ دفتر

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

نکته درستی

$f(m) = \{(-1, m), (2, m+2), (m, 2)\}$
 $m^2 = m+2 \rightarrow m^2 - m - 2 = 0 \rightarrow (m-2)(m+1) = 0 \rightarrow m = 2 \text{ یا } m = -1$
 $g(n) = \{(3, m+1), (1, 1), (m, 2), (2, m+2), (m, 2), (-1, 2)\}$
 اگر $m = 2$ مجموعه شامل دو عضو (1, 1) و (2, 3) می شود که تابع نیست
 اگر $m = -1$ مجموعه شامل دو عضو (-1, 2) و (2, 1) می شود که تابع نیست
 پس $m = -1$

$f(n) = \begin{cases} n^2 - 1 & n \leq 1 \\ an + b & 1 \leq n \leq 2 \\ n^3 & n \geq 2 \end{cases}$
 $a \times b = ?$
 $n^2 - 1 = an + b \rightarrow 1 - 1 = a + b \rightarrow a + b = 0$
 $n^3 = an + b \rightarrow 8 = 2a + b$
 $\begin{cases} a + b = 0 \\ 2a + b = 8 \end{cases} \rightarrow \begin{matrix} a = -8 \\ b = 8 \end{matrix}$
 $a \times b = -64$

$f(n) = \begin{cases} 2n-3 & n \geq k \\ 2-3n & n \leq k \end{cases}$
 $k = ?$
 $2k-3 = 2-3k \rightarrow 5k = 5 \rightarrow k = 1$

$f(x) = \begin{cases} -x+2 & x > 1 \\ -x & -1 \leq x \leq 1 \\ x-1 & x \leq -1 \end{cases}$
 $D_f = \mathbb{R} - \{1\}$
 $R_f = (-\infty, 1]$

الف) $xy^3 + x^2 + 1 = 0 \rightarrow xy^3 = -x^2 - 1$ ضابط $xy^3 = -x^2 - 1$
 $y_1^3 = y_2^3 \rightarrow y_1 = y_2$ هست $\checkmark$ $\rightarrow xy^3 = -x^2 - 1$
 $xy^3 = -x^2 - 1$

$\rightarrow n^2 + \epsilon y^2 - 2n - 1 + y + 1 = 0$ $\checkmark$ $\rightarrow (n-1)^2 + (y-1)^2 = 0 \rightarrow y=1$
 $n^2 - 2n + 1 + \epsilon y^2 - 1 + y + 1 = 0 \Rightarrow (n-1)^2 + (y-1)^2 = 0 \rightarrow y=1$

الف) $x \sin y = y \sin x$ $\checkmark$ $\rightarrow 1 \cdot \sin y = y \cdot 0 \rightarrow 1 \cdot \sin y = 0 \rightarrow \sin y = 0$
 $x \cdot \pi \rightarrow y = 0, 1, 2, \dots$

$\checkmark$ $\rightarrow \sqrt{\frac{x}{y}} + \sqrt{\frac{y}{x}} = 2$ $\checkmark$ $\rightarrow \frac{x}{y} + \frac{y}{x} + 2\sqrt{\frac{x}{y} \cdot \frac{y}{x}} = 4 \rightarrow \frac{x}{y} + \frac{y}{x} = 2$
 $\frac{x^2 + y^2}{xy} = 2 \rightarrow x^2 + y^2 - 2xy = 0 \rightarrow (x-y)^2 = 0 \rightarrow x=y$ $\checkmark$

الف) $y = \sqrt{\frac{n-1}{n-3}} + \sqrt{\frac{2-n}{n}} \rightarrow \frac{0}{0} + \frac{0}{0}$
 $D = (-\infty, 1] \cup (2, +\infty)$ $\checkmark$ $\rightarrow D_f = [0, 3]$

$\checkmark$ $\rightarrow \sqrt{x} + \sqrt{y-1} = \sqrt{3} \rightarrow \sqrt{y-1} = \sqrt{3} - \sqrt{x}$
 $\sqrt{3} - \sqrt{x} > 0 \rightarrow \sqrt{x} \leq \sqrt{3} \rightarrow x \leq 3$
 $\checkmark$ $\rightarrow D_f = (-\infty, 1] \cup (2, +\infty)$

$\checkmark$ $\rightarrow y = \sqrt{\frac{x^2 - \sqrt{x+4}}{x^2 - 1 - x + 4}} \rightarrow \frac{1}{x} - \frac{1}{x} + \frac{1}{x} - \frac{1}{x} + \frac{1}{x} \rightarrow D_f = (-\infty, 1] \cup (2, 4] \cup (8, +\infty)$

الف) $y = \sqrt{\frac{x^2 - 5x + 3}{x^2 - 7x + 8}} = \frac{0}{0}$ $\checkmark$ $\rightarrow \frac{1}{x} - \frac{5}{x} + \frac{3}{x} \rightarrow \frac{1}{x} - \frac{5}{x} + \frac{3}{x} \rightarrow D_f = (-\infty, 1) \cup [\frac{3}{2}, +\infty)$

$\checkmark$ $\rightarrow \sqrt{\frac{x^2 - 5x + 3}{x^2 - 7x + 8}} \rightarrow \frac{1}{x} - \frac{5}{x} + \frac{3}{x} \rightarrow \frac{1}{x} - \frac{5}{x} + \frac{3}{x} \rightarrow D_f = (-\infty, 1) \cup (1, \frac{3}{2}) \cup [\frac{3}{2}, +\infty)$