

19, 10

تلف: 1

یازدهم شهری

روز دوشنبه

-1

$$A = \{1, 2, 3\} \quad B = \{2, 3\} \quad A \times B - B^2$$

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

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

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

$$f(m) = \{(r, m^2), (r, 1), (-r, m), (-r, m), (r, m+2), (m, 1)\}$$

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

$$f(m) = \{(r, 1), (r, 1), (-r, -1), (-r, -1), (r, m+2), (m, 1)\}$$

آنها را به هم میزنیم و به دست می آوریم $r, 1, 1, -r, -1, -1$ و به دست می آوریم $r, 1, 1, -r, -1, -1$

به ازای $m = -1$ جمع نیست $\rightarrow$ جواب

$$g(m) = \{(r, m^2), (r, 1), (m, 1), (r, m+2), (-r, m), (-r, 1)\}$$

$$m^2 = m+2$$

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

به ازای هیچ m جمع نیست $\rightarrow$ جواب

آنها را به هم میزنیم و به دست می آوریم $r, 1, 1, -r, -1, -1$ و به دست می آوریم $r, 1, 1, -r, -1, -1$

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

$$\begin{aligned} n=1 & \rightarrow x = a+b \rightarrow a = -b \\ n=2 & \rightarrow 4a+b = 1 \rightarrow 4a+b = 1 \end{aligned}$$

$$\boxed{a=1} \quad \boxed{b=-1}$$

$$a \times b = (-1)(1) = -1$$

$\rightarrow$ جواب

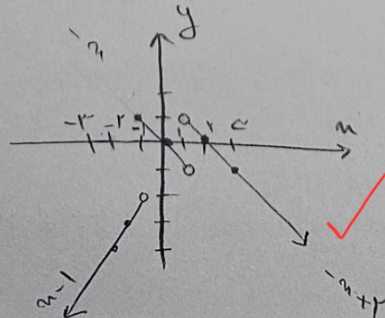
$$f(n) = \begin{cases} km-3 & n \geq k \\ k-2m & n < k \end{cases}$$

$$n=k \rightarrow 2k-3 = k-2k \rightarrow 2k-3 = -k \rightarrow 3k = 3 \rightarrow k = 1$$

$$\boxed{k = \frac{3}{3}} \rightarrow$$

$\rightarrow$ جواب

$$f(n) = \begin{cases} -n+2 \rightarrow n > 1 \\ -n & -1 < n < 1 \\ n-1 & n < -1 \end{cases}$$



$$\begin{aligned} D_f &= \mathbb{R} - \{1\} \\ R_f &= (-\infty, 1] \end{aligned}$$

$\rightarrow$ جواب

الف) $xy^2 + m^2 + 1 = 0$

$xy^2 = -m^2 - 1 \rightarrow y^2 = \frac{-m^2 - 1}{x}$

$m_1 = m_2 \rightarrow y_1^2 = \frac{-m^2 - 1}{x} = \frac{-m^2 - 1}{x} = \frac{-m^2 - 1}{x}$

$y_1^2 = \frac{-m^2 - 1}{x} \quad y_2^2 = \frac{-m^2 - 1}{x} \quad y_1^2 = y_2^2$

$y_1 = y_2$ (نقطة واحدة)

ب) $m^2 + 4y^2 - 2m - 12y + 1 = 0$

$(m-1)^2 + (2y-3)^2 = 0$

$(m-1)^2 = 0 \quad (2y-3)^2 = 0$

$m=1 \quad y=\frac{3}{2}$ (نقطة واحدة)

الف) $m \sin y = y \sin m$

$m=0 \rightarrow 0 = y \sin 0$

$y=0$ (نقطة واحدة)

ب) $\sqrt{\frac{m}{y}} + \sqrt{\frac{y}{m}} = 2$

$m_1 = m_2 \rightarrow \sqrt{\frac{m}{y_1}} + \sqrt{\frac{y_1}{m}} = \sqrt{\frac{m}{y_2}} + \sqrt{\frac{y_2}{m}} = 2$

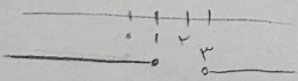
$y_1 = y_2$ (نقطة واحدة)

$m=y \neq 0$

الف) $y = \sqrt{\frac{m-1}{m-3}} + \sqrt{\frac{3-m}{m}}$

$\frac{1}{2} + \frac{3}{2} = 2$

$(-\infty, 1] \cup (3, +\infty) \cap (1, 3] = (1, 1] = \emptyset$



ب) $\sqrt{m} + \sqrt{y-1} = \sqrt{3}$

$\sqrt{y-1} = \sqrt{3} - \sqrt{m}$

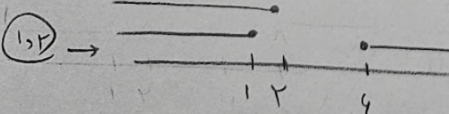
$\sqrt{3} > \sqrt{m} \rightarrow m < 3$

$\sqrt{m} > 0 \rightarrow m > 0$

$D_F = [0, 3]$

الف) $y = \sqrt{m^2 - 5m + 4} \geq (m-1)(m-4)$

$-4m + 4 \geq 14 > 4m \rightarrow \frac{14}{9} > m$



$D_F = (-\infty, 1]$

ب) $y = \sqrt{\frac{m^2 - 5m + 4}{m^2 - 1}} = \sqrt{\frac{(m-1)(m-4)}{(m-1)(m+1)}}$

$D_F = (-\infty, 1] \cup (3, 4] \cup (4, +\infty)$

الف) $y = \sqrt{\frac{m^2 - 5m + 4}{m^2 - 5m + 2}}$

$D_F = (-\infty, 1) \cup [\frac{4}{3}, +\infty)$

ب) $y = \sqrt{\frac{m^2 - 5m + 2}{m^2 - 5m + 4}}$

$D_F = (-\infty, 1) \cup (1, \frac{4}{3}) \cup [\frac{4}{3}, +\infty)$