

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

$$B \times B = (2,2)(2,3)(3,3)(3,2)$$

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

✓ (✓)

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$$m^2 - m - 2 = 0 \quad (m-2)(m+1) = 0 \quad m = 2 \text{ و } -1$$

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$$\rightarrow m^2 - m - 2 = 0 \quad (m-2)(m+1) = 0 \quad m = 2 \text{ و } -1$$

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$$\begin{cases} x^2 - 1 = 0 \\ x^2 = 1 \end{cases} \begin{cases} a+b=0 \\ 2a+b=1 \end{cases} \begin{cases} -a-b=0 \\ 2a+b=1 \end{cases} \begin{cases} a=1 \\ b=-1 \end{cases}$$

$$a \times b = -1$$

✓ (✓)

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$$2K - 3 = 4 - 3K$$

$$5K = 7$$

$$K = \frac{7}{5}$$

✓ (✓)

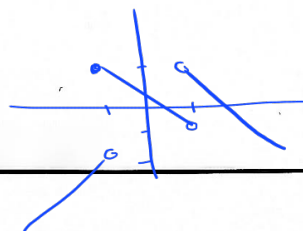
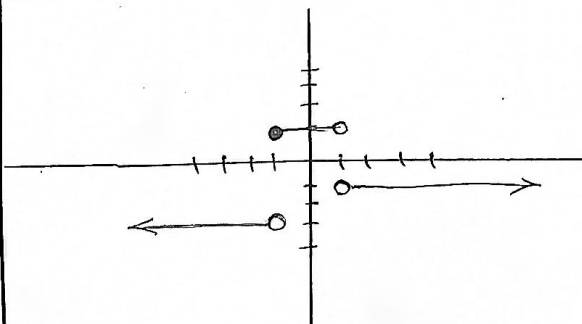
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$$R = \mathbb{R} - \{1\}$$

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$$R = \{1\} \quad (-\infty, 1]$$

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الف) $y^w + x^p + 1 = 0$ $y_1^w + x_1^p + 1 = 0$ $y_2^w + x_2^p + 1 = 0$
 $y^w = y_1^w$ $y_1^w = y_2^w$ $y_1 = y_2$ تابع هدف

$\Rightarrow x^p - 2x = (x^p - 2x + 1) - 1 = (x-1)^p - 1$ $y^p - 12y = (y^p - 12y + \frac{9}{4}) - \frac{9}{4} = (y - \frac{3}{2})^p - \frac{9}{4}$
 $(x-1)^p - 1 + (y - \frac{3}{2})^p - \frac{9}{4} + 1 = 0 \rightarrow (x-1)^p + (y - \frac{3}{2})^p = 0$
 $x=1$ $y = \frac{3}{2}$ تابع هدف

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الف) $x-1=0$ $x=1$
 $x-3=0$ $x=3$
 $3-x=0$ $x=3$
 $x=0$
 $\Rightarrow y-1 \geq 0$ $y \geq 1$
 $x \geq 0$ $\sqrt{x} \leq \sqrt{3}$ $x \leq 3$
 $D = 0 \leq x \leq 3$

$\begin{array}{c|c|c|c} & 1 & 3 & \\ \hline & + & 0 & - \\ \hline & 1 & 0 & 3 \end{array}$

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

$D = (0, 1]$

$\begin{array}{c|c|c|c} & 0 & 3 & \\ \hline & - & 0 & + \\ \hline & 0 & 3 & 1 \end{array}$

$D = (0, 3]$

$\sqrt{y-1} \leq \sqrt{3}$

$y \leq 4$

$x^p - \sqrt{x} + 4 \geq 0$ $(x-4)(x-1) \geq 0$ $x \geq 4$ $x > 1$
 $x^p - 1.0x + 14 > 0$ $(x-1)(x-2) > 0$ $x > 1$ $x > 2$
 $D = x > 1$ $4x+14 > 0 \rightarrow x > -\frac{14}{4}$

$\Rightarrow \frac{x^p - \sqrt{x} + 4}{x^p - 1.0x + 14} \geq 0$ $x^p - \sqrt{x} + 4 \rightarrow x = (4, 1)$
 $x^p - 1.0x + 14 \rightarrow x = (1, 2)$

$\begin{array}{c|c|c|c|c|c} & -\infty & 1 & 2 & 4 & 1 & +\infty \\ \hline & + & 0 & - & 0 & - & + \end{array}$

$D = (-\infty, 1] \cup (2, 4] \cup (1, +\infty)$

الف) $x^p - 9x + 4 \geq 0$ $x \geq 1$ $x \geq \frac{w}{p}$ $\rightarrow D = x \geq \frac{w}{p}$

$w x^p - \sqrt{x} + 4 > 0$ $x > 1$ $x > \frac{w}{p}$

$D = (-\infty, 1) \cup (\frac{w}{p}, +\infty)$

$\Rightarrow \frac{x^p - 9x + 4}{w x^p - \sqrt{x} + 4} \geq 0$ $x^p - 9x + 4 \rightarrow x = (1, \frac{w}{p})$
 $w x^p - \sqrt{x} + 4 \rightarrow x = (1, \frac{w}{p})$

$\begin{array}{c|c|c|c|c|c} & -\infty & 1 & \frac{w}{p} & \frac{w}{p} & +\infty \\ \hline & + & 0 & + & 0 & - \end{array}$

$D = (-\infty, 1) \cup (1, \frac{w}{p}) \cup (\frac{w}{p}, +\infty)$