

٢. اتمين صلي خوب نويس: البيا موزايي

١) الف $x^2 - 5x - 4 = 0$

$x^2 - 5x - 4 = 0 \rightarrow (x-9)(x+5) = 0$

$\downarrow \quad \downarrow$
 $9 \quad -5$
 $\frac{9}{1} \quad \frac{-5}{1}$

ب) $x^2 - 8x - 9 = 0 \rightarrow x^2 - 8x - 9 = 0$

$\rightarrow (x-9)(x+1) = 0$

$\downarrow \quad \downarrow$
 $9 \quad -1$
 $\frac{9}{1} \quad \frac{-1}{1}$

ج) $x^2 - 4x - 12 = 0 \rightarrow x^2 - 4x - 12 = 0$

$\rightarrow (x-6)(x+2) = 0$

$\downarrow \quad \downarrow$
 $6 \quad -2$
 $\frac{6}{1} \quad \frac{-2}{1}$

د) $x^2 - 5x - 12 = 0 \rightarrow x^2 - 5x - 12 = 0$

$(x-7)(x+2) = 0$

$\downarrow \quad \downarrow$
 $7 \quad -2$
 $\frac{7}{1} \quad \frac{-2}{1}$

٢) الف $x^2 - 5x - 14 = 0 \rightarrow (x-7)(x+2) = 0$

ب) $2x^2 + 5x + 2 = 0 \rightarrow \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{-5 \pm \sqrt{25 - 4 \cdot 2 \cdot 2}}{2 \cdot 2}$

$\frac{-5}{2} = -2.5$

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دا شنبه

$$2) x^2 + 2x + 3 = 0 \quad \Delta = b^2 - 4ac = 4 - 12 < 0 \rightarrow \text{no real roots}$$

$$3) 3x^2 + 3x - 2 = 0 \quad \frac{-3 \pm \sqrt{9 + 24}}{6} = \frac{-3 \pm \sqrt{33}}{6}$$

$$4) A \times B = \{(1, 2)(1, 3)(2, 2)(2, 3)(3, 2)(3, 3)\}$$

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

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

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

$$(2, 1)(2, 2) \rightarrow m = 2$$

$$6) m^2 - m - 2 = 0 \rightarrow (m - 2)(m + 1) = 0 \quad m < -1$$

$$m = 2 \rightarrow (2, 1)(2, 2)$$

$$m = -1 \rightarrow (-1, 2)(-1, 3)$$

$$7) a^2 = 2a - 2 \rightarrow a^2 - 2a + 2 = 0 \quad (a - 1)(a - 1) = 0$$

$$a = 1 \rightarrow (1, 1) \text{ and } (1, 2) \rightarrow a = 1$$

$$8) x^2 - 1 \xrightarrow{x=1} 0$$

$$a + b \xrightarrow{x=1} a + b \rightarrow a + b = 0$$

$$x = 2 \rightarrow 2a + b = 1 \rightarrow a = 1, b = -1$$

تاسوعای حسینی (عظیم) - تشکیل جهاد دانشگاهی (۱۳۵۹ هجری)

برادران
یخشوبه

$$\textcircled{2} 2K-3=4-3K \rightarrow 5K=7 \rightarrow K=\frac{7}{5}$$

$$\textcircled{1} \text{ الف) } y(y^2-4) = (x-1)(x-4) \xrightarrow{x=1} y(y^2-4)=0$$

$x=1 \Rightarrow y = \begin{matrix} 0 \\ \sqrt{4} \\ -\sqrt{4} \end{matrix}$

$$\text{ب) } |x|+|y|=3 \xrightarrow{x=0} |y|=3 \rightarrow y = \pm 3$$

$$\text{ج) } |y| = \sqrt{1-\cos x} \xrightarrow{\cos x = \frac{1}{2}} |y| = \sqrt{\frac{1}{2}} \rightarrow y = \pm \frac{1}{\sqrt{2}}$$

$$\text{د) } y^2 + (x+1)^2 = 0 \rightarrow \begin{matrix} -1 \\ 0 \end{matrix} \rightarrow \text{نقطه}$$

$$\textcircled{4} \sqrt[3]{y} + x^2 = 2x-2 \rightarrow \sqrt[3]{y} = 2x-2-x^2$$

۲ توان $y = (2x-2-x^2)^3 \rightarrow y_1 = y_2$

$$\text{ب) } y_1^3 + 2y_1 = 2x$$

$$\left. \begin{aligned} y_1^3 + 2y_1 &= 2x \\ y_1^3 + 2y_1 &= 2x \end{aligned} \right\} \begin{aligned} y_1^3 - y_2^3 + 2(y_1 - y_2) &= 0 \\ y_1^3 + 2y_1 &= 2x \end{aligned}$$

$$(y_1 - y_2)(y_1^2 + y_1 y_2 + y_2^2 + 2) = 0$$

$$\xrightarrow{x=1} y_1 = y_2 = 0 \rightarrow y_1 = y_2$$

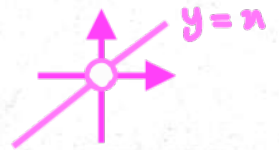
$$\text{الف) } x \sin y = y \sin x \xrightarrow{x=0} 0 \sin y = y \sin 0$$

۰ سین $y = y \times 0$

$$\sqrt{\frac{x}{y}} + \sqrt{\frac{y}{x}} = 2 \quad (100 - \text{ب})$$

این عبارت تنها زمانی برقرار است که $\sqrt{\frac{x}{y}} = 1$ باشد پس

$$\sqrt{\frac{x}{y}} = 1 \leadsto \frac{x}{y} = 1 \leadsto x = y \text{ و } (x, y \neq 0)$$



$$\text{ب) } \sqrt{\frac{x}{y}} = n, \sqrt{\frac{y}{x}} = \frac{1}{n}$$

$$n + \frac{1}{n} = 2 \rightarrow n^2 + 1 - 2n = 0 \quad (2)$$

$$(n-1)^2 = 0 \rightarrow n = 1 \rightarrow \sqrt{\frac{x}{y}} = 1$$

$$\rightarrow \frac{x}{y} = 1 \rightarrow x = y$$

تابع مستقیم است
($x, y \neq 0$) باید نزنه!