

٢٠ افمن ضيف قوب نوكتي! خلاصا لنتاه! آوينا شيطان

جاءهم جليلي
دخلك

الف $9x^2 - 5x - 9 = 0 \rightarrow x^2 - 5x - 9 = 0 \rightarrow (x-4)(x+1) \rightarrow \frac{4}{1}, \frac{-1}{1}$
 ب $3x^2 - 1x - 3 = 0 \rightarrow x^2 - 1x - 9 = 0 \rightarrow (x+1)(x-4) \rightarrow \frac{4}{1}, \frac{-1}{1}$
 ج $4x^2 - 4x - 3 = 0 \rightarrow x^2 - 4x - 12 = 0 \rightarrow (x+2)(x-6) \rightarrow \frac{6}{1}, \frac{-2}{1}$
 د $2x^2 - 5x - 12 = 0 \rightarrow x^2 - 5x - 12 = 0 \rightarrow (x-1)(x+12) \rightarrow \frac{12}{1}, \frac{-1}{1}$

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

ب $2x^2 + 5x + 3 = 0$ $a+c=b \rightarrow -1, C/a \rightarrow -1, -\frac{3}{2}$

ج $x^2 + 2x + 3 = 0$ $\Delta = b^2 - 4ac$ دلتا $\frac{-b \pm \sqrt{\Delta}}{2a} \rightarrow \frac{-2 \pm \sqrt{4 - (4 \times 1 \times 3)}}{2}$

$\Delta < 0 \Rightarrow$ لا حلا لانا
جاءنا حلا واحد واحد

د $3x^2 + 3x - 2 = 0$ دلتا $\frac{-3 \pm \sqrt{9 - (4 \times 3 \times -2)}}{6} \rightarrow \frac{-3 + \sqrt{33}}{6}, \frac{-3 - \sqrt{33}}{6}$

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

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

الف $F(x) = \{(3, m^2), (2, 1), (-3, m), (-2, m), (3, m+2), (m+4)\}$

$\Rightarrow m^2 = m+2 \rightarrow m^2 - m - 2 = 0 \rightarrow m = 2, -1$

if $\rightarrow m=2 \Rightarrow (3, 4), (2, 1), (-3, 2), (-2, 2), (3, 4), (2, 4) \Rightarrow m \neq 2$

if $\rightarrow m=-1 \Rightarrow (3, 1), (2, 1), (-3, -1), (-2, -1), (3, 1), (1, 4)$ خارج السلك

ب) $\{(3, m^2), (2, 1), (m, 4), (3, m+2), (-2, m), (-1, 3)\}$

$m^2 = m+2 \Rightarrow m = -1, 2$

if $m = -1 \rightarrow \{(3, 1), (2, 1), (-1, 4), (3, 1), (-2, -1), (-1, 3)\} \Rightarrow m \neq -1$

if $m = 2 \rightarrow \{(3, 4), (2, 1), (2, 4), (3, 4), (-2, 2), (-1, 3)\} \Rightarrow m \neq 2$ (x) g(2) به ازای هیچ مقدار m کما لفظ جالبه

مقدار m کما لفظ جالبه

$3a - 2 = a^2 \rightarrow a^2 - 3a + 2 = 0 \rightarrow a = 1, 2$ {جمع ضرایب = 0, C_a }

if $a = 1 \rightarrow (1, 1), (1, 1), (1, 4) \rightarrow a \neq 1$ (x) مولفه و حقیقی
if $a = 2 \rightarrow (1, 4), (1, 4), (4, 1) \rightarrow a = 2 \checkmark$ جواب

if $x = 1 \rightarrow x^2 - 1 = ax + b \Rightarrow 1 - 1 = a + b \Rightarrow a + b = 0$

if $x = 2 \rightarrow x^2 = ax + b \Rightarrow 1 = 2a + b \Rightarrow 1 = a + 0 \Rightarrow a = 1, b = -1 \rightarrow ax + b = 1x - 1 = -x + 1$ جواب

if $x = k \rightarrow 2x - 3 = 4 - 3x \Rightarrow 2k - 3 = 4 - 3k \Rightarrow 5k = 7 \rightarrow k = 7/5$ جواب

الف) if $x = 1 \rightarrow y^3 - 4y = 1 - 4 + 3 \rightarrow y^3 = 4y \rightarrow y^3 - 4y = 0 \rightarrow y(y^2 - 4) = 0 \rightarrow y = 0, \pm 2$ جواب

کما لفظ به ازای $x = 1$ به ازای $y = 0$

ب) if $x = 1 \rightarrow |1| + |y| = 3 \Rightarrow |y| = 2 \rightarrow y = -2, 2$ جواب

ج) $|y| = \sqrt{1 - \cos x} \Rightarrow \cos 180 = -1 \rightarrow \sqrt{1 - (-1)} = |y| \Rightarrow |y| = \sqrt{2} \rightarrow y = \pm \sqrt{2}$ جواب

د) $y^2 + x^2 + 2x + 1 = 0 \Rightarrow y^2 + (x+1)^2 = 0 \rightarrow y^2 = -(x+1)^2$ جواب
 $(-1, 0)$ کما لفظ

الف) $\sqrt[3]{y} + x^2 = 2x - 2$

$$\begin{aligned} \sqrt[3]{y_1} + x^2 &= 2x - 2 \\ \sqrt[3]{y_2} + x^2 &= 2x - 2 \end{aligned} \Rightarrow \sqrt[3]{y_1} = \sqrt[3]{y_2}$$

~~$y_1 = y_2$~~

جواب

$$y = (2x - 2 - x^2)^3$$

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

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

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

$\downarrow$
 $0 \rightarrow y_1 = y_2$

$$y_1 = \frac{-y_2 \pm \sqrt{\Delta}}{2}$$

$$\Delta = y_2^2 - 4(y_2^2 + 2) = y_2^2 - 4y_2^2 - 8 = -3y_2^2 - 8$$

$$\Delta = -3y_2^2 - 8 < 0$$

$\leftarrow$ (9)

$$x=0 \Rightarrow 0 \times \sin y = y \times \sin 0 \quad \sin 0 = 0 \quad \text{حالا} \Rightarrow 0=0$$

(10)

الف) - این رابطه به ازای هر مقدار ~~واقعی~~ ~~داللت~~ - ~~حاج~~ ~~خ~~

$$\sqrt{\frac{x}{y}} + \sqrt{\frac{y}{x}} = 2 \Rightarrow \sqrt{\frac{x}{y}} + \frac{y}{\sqrt{x}} + 2 \times \left(\sqrt{\frac{x}{y}} \times \sqrt{\frac{y}{x}} \right) = 2 \Rightarrow \sqrt{\frac{x}{y}} + \frac{y}{\sqrt{x}} + 2 = 2 \Rightarrow \sqrt{\frac{x}{y}} + \frac{y}{\sqrt{x}} = 0 \Rightarrow \frac{x^2 + y^2}{xy} = 0 \Rightarrow x^2 + y^2 - 2xy = 0 \Rightarrow (x-y)^2 = 0 \Rightarrow x=y$$

حالا همانجا ✓

($x, y \neq 0$) یادت نره!

(۱۰-ب) $\sqrt{\frac{x}{y}} + \sqrt{\frac{y}{x}} = 2$

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

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

