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الف) $\rightarrow 4x^2 - 5x - 9 = 0 \rightarrow x^2 - 5x - 9 = 0 \rightarrow (x-9)(x+1)$ $x_1 = -\frac{9}{4}, x_2 = \frac{9}{4}$

ب) $\rightarrow 3x^2 - 11x - 4 = 0 \rightarrow x^2 - 11x - 4 = 0 \rightarrow (x-9)(x+1)$ $x_1 = -\frac{1}{3}, x_2 = \frac{9}{3}$

ج) $\rightarrow 4x^2 - 5x - 9 = 0 \rightarrow x^2 - 5x - 9 = 0 \rightarrow (x-4)(x+1)$ $x_1 = -\frac{1}{4}, x_2 = \frac{4}{1}$

د) $\rightarrow 2x^2 - 5x - 12 = 0 \rightarrow x^2 - 5x - 12 = 0 \rightarrow (x-1)(x+3)$ $x_1 = -\frac{1}{2}, x_2 = \frac{1}{1} = 1$

الف) $(x-7)(x+2) = 0 \rightarrow x_1 = 7, x_2 = -2$

ب) $2x^2 + 5x + 2 = 0 \rightarrow x^2 + 5x + 4 = 0 \rightarrow (x+2)(x+3) \rightarrow x_1 = -\frac{2}{2}, x_2 = -\frac{3}{2} = -1$

ج) $\Delta = (2)^2 - 4(3)(1) = -12 \rightarrow \Delta < 0 \rightarrow$ $\Delta < 0$

د) $\rightarrow \Delta = 9 - 4(3)(3) = -27 \rightarrow x_1 = -\frac{3+\sqrt{27}}{4}, x_2 = -\frac{3-\sqrt{27}}{4}$

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

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

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

الف) $m+2 = m^2 \rightarrow m^2 - m - 2 = 0 \rightarrow (m-2)(m+1) = 0$
 if $m=2 \rightarrow (2,2) = (2,2) \rightarrow m \neq 2, m = -1$

دست کن!

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

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

$a^2 = 3a - 2 \rightarrow a^2 - 3a + 2 = 0 \rightarrow (a-1)(a-2) = 0$

if $a=1 \rightarrow 3a+2 = 5 \rightarrow 5 \neq 4 \rightarrow a=2$

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

$$\left\{ \begin{array}{l} -2a+b \\ (a+b) \end{array} \right\} \rightarrow \frac{-2a+b}{a=1} \rightarrow b=-1 \rightarrow a \times b = -1$$

-4

$x=k \rightarrow 2k-3 = 4-3k$
 $\omega k = 7 \rightarrow k = \frac{7}{\omega}$

-7

الف) $x=1 \rightarrow y^3-4y=0 \rightarrow y^3=4y \rightarrow y^2=4 \rightarrow y=\pm 2$

-8

ب) $x=0 \rightarrow y=\pm 3$

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

د) تابع است

پاسخ تشریحی اول بنویس از دومی بعد
 نمره نفر دهم !!

الف) $\sqrt[3]{y} + x^2 = 2x-2 \rightarrow \sqrt[3]{y} = -x^2+2x-2 \rightarrow y = (-x^2+2x-2)^3$

تابع است

باید با تعریف ریاضی صحتش!

ب) $f(y) = y^3 + 2y \rightarrow$ تابع است

تابع لایه ای است
 درجه 1 از هر لایه یک ی می ده

الف) $x=\pi \rightarrow \sin \pi = 0 \rightarrow \pi \sin y = 0 \rightarrow \sin y = 0$
 $y = 0, \pi, 2\pi, 3\pi, \dots$

-1.

ب) $\sqrt{\frac{x}{y}} + \sqrt{\frac{y}{x}} = 2 \rightarrow a = \sqrt{\frac{x}{y}} \rightarrow \sqrt{\frac{y}{x}} = \frac{1}{a}$

یادته نره!

تابع است

$a + \frac{1}{a} = 2 \xrightarrow{\times a} a^2 + 1 = 2a \rightarrow a^2 - 2a + 1 = 0 \rightarrow (a-1)^2 = 0 \rightarrow a = 1 \rightarrow \sqrt{\frac{x}{y}} = 1 \rightarrow x=y$

ج-۴) $(3, m^2)$ و $(3, m+2) \rightarrow m^2 = m+2 \rightarrow m^2 - m - 2 = 0$

$m=2 \rightarrow (2, 1)$ و $(2, 4)$ ✗

$m=-1 \rightarrow (-1, 4)$ و $(-1, 3)$ ✗ به ازای هیچ مقدار m عبارت تابعیت!

الف-۹) $\sqrt[3]{y} + x^2 = 2x - 2$

$\int \sqrt[3]{y_1} + x_1^2 = 2x_1 - 2$

$x_1 = x_2 \rightarrow \sqrt[3]{y_1} = \sqrt[3]{y_2} \xrightarrow{(\cdot)^3} y_1 = y_2$

$\int \sqrt[3]{y_2} + x_2^2 = 2x_2 - 2$

تابعیت!

ب-۹) $y''' + 2y = 2x$

$\int y_1''' + 2y_1 = 2x_1$

$x_1 = x_2 \rightarrow y_1''' + 2y_1 = y_2''' + 2y_2$

$\int y_2''' + 2y_2 = 2x_2$

$y_1''' - y_2''' + 2(y_1 - y_2) = 0 \rightarrow (y_1 - y_2) \overset{I}{(y_1'' + y_1 y_2' + y_2'' + 2)} \overset{II}{=} 0$

$I \rightarrow y_1 - y_2 = 0 \rightarrow y_1 = y_2$ همه زیر مسائل گفته است پس شرطی نیست

$II \rightarrow y_1'' + y_1 y_2' + y_2'' + 2 = 0 \rightarrow y_1 = \frac{-y_2' \pm \sqrt{y_2'' - 4(y_2'' + 2)}}{2}$ ✗

$\rightarrow y_1 = y_2$ تابعیت!

$$(10-ب) \sqrt{\frac{x}{y}} + \sqrt{\frac{y}{x}} = 2$$

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

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

