

نام و نام خانوادگی: آریانا محمدی

پاسخنامه تشریحی تکلیف شماره ...! کلاس: یازدهم ریاضی

19.5 آفرین

الف) $A = 4m^2 - 5m - 4 = 0 \rightarrow (4m-9)(-m+4) \rightarrow 4m-9=0 \rightarrow m=9/4$ (X)
 $\rightarrow (4m-9)(-m+4) = 0 \rightarrow 4m-9=0 \rightarrow m=9/4$ (X)
 $\rightarrow (4m-9)(-m+4) = 0 \rightarrow -m+4=0 \rightarrow m=4$ (X)
 $A = 3m^2 - 11m - 4 = 0 \rightarrow (3m-11)(m+4) \rightarrow 3m-11=0 \rightarrow m=11/3$ (X)
 $\rightarrow (3m-11)(m+4) = 0 \rightarrow m+4=0 \rightarrow m=-4$ (X)
 $A = 2m^2 - 5m - 12 = 0 \rightarrow (2m-9)(m+4) \rightarrow 2m-9=0 \rightarrow m=9/2$ (X)
 $\rightarrow (2m-9)(m+4) = 0 \rightarrow m+4=0 \rightarrow m=-4$ (X)
 $2A = (2m-9)(2m+3) = 0 \rightarrow 2m-9=0 \rightarrow m=9/2$ (X)
 $\rightarrow (2m-9)(2m+3) = 0 \rightarrow 2m+3=0 \rightarrow m=-3/2$ (X)

الف) $m^2 - 5m - 16 = 0 \rightarrow (m-9)(m+2) = 0 \rightarrow m-9=0 \rightarrow m=9$ (X)
 $\rightarrow (m-9)(m+2) = 0 \rightarrow m+2=0 \rightarrow m=-2$ (X)
 $A = 2m^2 + 5m + 3 = 0 \rightarrow (2m+3)(m+1) = 0 \rightarrow 2m+3=0 \rightarrow m=-3/2$ (X)
 $\rightarrow (2m+3)(m+1) = 0 \rightarrow m+1=0 \rightarrow m=-1$ (X)
 $\Delta = (5)^2 - 4(2)(3) = 25 - 24 = 1 > 0 \rightarrow$ دو ریشه حقیقی
 $\rightarrow m = \frac{-5 \pm \sqrt{1}}{4} \rightarrow m = \frac{-5 \pm 1}{4} \rightarrow m = -1, -3/2$

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

الف) $m^2 = m + 2 \rightarrow m^2 - m - 2 = 0 \rightarrow (m-2)(m+1) = 0 \rightarrow m-2=0 \rightarrow m=2$ (X)
 $\rightarrow (m-2)(m+1) = 0 \rightarrow m+1=0 \rightarrow m=-1$ (X)
 $m=2 \rightarrow \{(2, 4), (2, 1), (-3, 2), (-2, 2), (3, 4), (2, 2)\}$
 $m=-1 \rightarrow \{(3, 1), (1, 1), (-3, 1), (-2, 1), (3, 1), (-1, 4)\}$
 $b) m^2 = m + 2 \rightarrow m^2 - m - 2 = 0 \rightarrow (m-2)(m+1) = 0 \rightarrow m-2=0 \rightarrow m=2$ (X)
 $\rightarrow (m-2)(m+1) = 0 \rightarrow m+1=0 \rightarrow m=-1$ (X)
 $m=2 \rightarrow (2, 1) \times (2, 4)$ (X)
 $m=-1 \rightarrow (-1, 2) \times (-1, 4)$ (X)

$a^2 = 3a - 2 \rightarrow a^2 - 3a + 2 = 0 \rightarrow (a-1)(a-2) = 0 \rightarrow a-1=0 \rightarrow a=1$ (X)
 $\rightarrow (a-1)(a-2) = 0 \rightarrow a-2=0 \rightarrow a=2$ (X)
 $a=1 \rightarrow \{(1, 1), (1, 4), (4, 1)\}$ (X)
 $a=2 \rightarrow \{(2, 1), (2, 4), (4, 2)\}$ (X)

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

$$n=2 \rightarrow an+b = n^2 \rightarrow 2a+b = 1$$

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

$$-1+1 = -4f \leftarrow a \cdot b$$

$$a+b=0 \rightarrow a=-b$$

$$-b=1 \rightarrow b=-1$$

$$a=1$$

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

$$2n+3n = k+3$$

$$5n = k+3 \rightarrow n = \frac{k+3}{5}$$

$$n=k \rightarrow k = \frac{k+3}{5}$$

الف) $y'' - xy = x^2 - 4x + 3 \rightarrow y'' - 0y = x^2 - 4x + 3$ $\rightarrow$ تابع ثابت

ب) $|x| + |y| = 3 \rightarrow x=0 \rightarrow |y| = 3 \rightarrow y = \pm 3$ $\rightarrow$ تابع ثابت

ج) $|y| = \sqrt{1 - \cos x}$ $\rightarrow \cos x = 0 \rightarrow x = \frac{\pi}{2}, \frac{3\pi}{2}, \dots$

د) $y'' + 2y' + 2y + 1 = 0 \rightarrow y'' + (y'+1)^2 = 0 \rightarrow y' = 0 \rightarrow y = 0$ $\rightarrow$ تابع ثابت

الف) $\sqrt{y} + x^2 = 2x - y \rightarrow \sqrt{y_1} = -x_1^2 + 2x_1 - y_1 \rightarrow y_1 = x_1^2 - 4x_1 + 4$

ب) $y'' + 2y = \omega x$ $\rightarrow y_1'' + 2y_1 = \omega x$ $\rightarrow y_1 = y_2$ $\rightarrow y_1 = y_2$

$y_1'' + 2y_1 = \omega x$ $\rightarrow y_1'' + 2y_1 - y_2'' - 2y_2 = 0$ $\rightarrow \Delta = y_1'' - y_2'' - 2(y_1 - y_2) = 0$

$(y_1 - y_2)(y_1'' + y_1 y_2 + y_2'') + 2(y_1 - y_2) = 0 \rightarrow (y_1 - y_2)(y_1'' + y_1 y_2 + y_2'') + 2(y_1 - y_2) = 0$

الف) $x \sin y = y \sin x \rightarrow y = x$ $\rightarrow$ تابع ثابت

ب) $\sqrt{\frac{x}{y}} + \sqrt{\frac{y}{x}} = 2$ $\rightarrow \frac{x}{y} = \frac{y}{x} \rightarrow x = y$ $\rightarrow$ تابع ثابت

الف ١) $4x^2 - 5x - 4 = 0$

$$x^2 - 5x - 34 = 0 \rightarrow (x-9)(x+4) = 0 \rightarrow x_1 = \frac{9}{4} = \frac{3}{2}$$

$$\rightarrow x_2 = \frac{-4}{4} = -\frac{2}{3}$$

باروش سفا:

$$4x^2 - 5x - 4 = 0 \rightarrow 34x^2 - 3 \cdot x - 34 = 0 \rightarrow (4x-9)(4x+8) = 0$$

$x = \frac{9}{4} \text{ و } \frac{3}{2}$ $x = -\frac{4}{4} \text{ و } -\frac{2}{3}$