

1. a) $x^2 - 2x - 15 = 0 \Rightarrow (x-5)(x+3) = 0 \Rightarrow x = 5 \vee x = -3$

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-1

ب) $x^2 - 11x - 9 = 0 \Rightarrow (x-9)(x+1) = 0 \Rightarrow \begin{cases} x = 9 \\ x = -1 \end{cases}$

ج) $x^2 - 6x - 17 = 0 \Rightarrow (x-4)(x+2) = 0 \Rightarrow \begin{cases} x = 4 \\ x = -2 \end{cases}$

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ح) $x^2 - 2x - 15 = 0 \Rightarrow \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \Rightarrow x = \frac{-(-2) \pm \sqrt{4 + 60}}{2} \Rightarrow \begin{cases} x = 5 \\ x = -3 \end{cases}$

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

ب) $A^c = \{(2,2), (2,3), (3,2), (3,3)\}$

$A \cup B - A^c = \{(1,2), (1,3)\}$

ج) $m^2 - m - 12 = 0 \Rightarrow (m-4)(m+3) = 0 \Rightarrow \begin{cases} m = 4 \\ m = -3 \end{cases}$

$(1,2), (2,3) \rightarrow$ مرتبة اول

د) $m^2 - m - 12 = 0 \Rightarrow (m-4)(m+3) = 0 \Rightarrow \begin{cases} m = 4 \\ m = -3 \end{cases}$

$(-1,2), (-2,3), (1,2), (2,3)$

$$a^T (a - \lambda I) \Rightarrow a^T - \lambda a^T \Rightarrow 0 \Rightarrow \begin{cases} a^T = 0 \\ a^T = 0 \end{cases} \rightarrow \{(1, 1), (1, 0), (1, 0)\} \times \frac{1}{\sqrt{2}}$$

$$x \perp b \Rightarrow 0 \leq a \cdot x + b \leq 0 \Rightarrow a \cdot b$$

$$x \perp r \Rightarrow 1 \leq r \leq a + b$$

$$\begin{matrix} a \perp \lambda \\ b \perp \lambda \end{matrix} \Rightarrow \{a, b\} \perp \lambda$$

$$x \perp k \Rightarrow r \cdot k - c \leq r \cdot c - k \Rightarrow d \cdot k \leq r \cdot c \Rightarrow \{k \leq \frac{r \cdot c}{d}\}$$

$$a) y'' - 4y = x^2 - 4x + c \xrightarrow{x=1} y(y^2 - 4) = 0 \Rightarrow y = 0 \text{ or } y = \pm 2$$

$$1) |y| = c - |x| \xrightarrow{x=1} |y| = 2 \Rightarrow y = \pm 2$$

$$2) |y| = \sqrt{1 - \cos x} \xrightarrow{x=\pi} |y| = 1 \Rightarrow y = \pm 1$$

$$3) y' = (x+1)^2 \xrightarrow{\int} y = \frac{1}{3}(x+1)^3 + C$$

$$a) \sqrt{y} = -x^2 + 2x - 1 \xrightarrow{x=1} \sqrt{y_1} = \sqrt{y_2} \xrightarrow{\text{square}} y_1 = y_2 \Rightarrow \text{تابع}$$

$$1) y'' + 2y = 0 \xrightarrow{x=1} y_1'' + 2y_1 = y_2'' + 2y_2$$

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

$$\Rightarrow (y_1 - y_2)(y_1'^2 + y_2'^2 + y_1 y_2 + 2) = 0 \Rightarrow y_1'^2 - 4y_2'^2 = 1$$

-10.

$$\text{Ans) } x=0 \rightarrow (0) \sin y = y (\sin(0)) \rightarrow y = \frac{\pi}{2}$$

$$\left. \begin{array}{l} y = \frac{\pi}{4} \\ y = \pi \end{array} \right\} \rightarrow \text{Reject}$$

$$\rightarrow \frac{r \frac{dy}{dx}}{x^2} \quad \frac{x}{y} + \frac{y}{x} + 1 = 0 \Rightarrow \frac{x}{y} + \frac{y}{x} = -1 \xrightarrow{\times xy} x^2 + y^2 = -xy \Rightarrow (x-y)^2 = 0$$

$$\Rightarrow x = y$$

$$x_1 = x_2 \rightarrow y_1 = y_2$$