

سوال ١

$$0 = (3 + w)(6 - w) \Rightarrow w^2 - 3w = 0 \rightarrow w^2 - 3w - 4 = 0 \quad \text{الف}$$

$$\frac{w}{4} = \frac{4}{b} \rightarrow w \rightarrow 3 - w \rightarrow w >$$

$$0 = (1 + w)(6 - w) \Rightarrow 6 - w = 0 \Rightarrow w = 6 \rightarrow w^2 - 3w - 4 = 0 \Rightarrow w^2 - 3w - 4 = 0 \Rightarrow w^2 - 3w - 4 = 0$$

$$\frac{1}{3} = \frac{3}{b} \rightarrow w \rightarrow 1 - w \rightarrow w \Rightarrow$$

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$$0 = (1 + w)(6 - w) \Rightarrow 11 - 3w = 0 \Rightarrow w = \frac{11}{3}$$

$$\frac{1}{3} = \frac{3}{b} \rightarrow w \rightarrow 1 - w \rightarrow w \Rightarrow$$

$$0 = (1 + w)(6 - w) \Rightarrow 31 - 11w = 0 \Rightarrow w = \frac{31}{11}$$

$$\frac{1}{3} = \frac{3}{b} \rightarrow w \rightarrow 1 - w \rightarrow w \Rightarrow$$

سوال ٢

$$0 = (1 + w)(6 - w) \Rightarrow w^2 - 3w = 0 \Rightarrow w^2 - 3w - 4 = 0 \quad \text{الف}$$

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$$A = \{1, 2, 3\} \quad B = \{2, 3\}$$

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

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

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

سوال ۳

$$f(n) = \left\{ \overline{(3, m^r)}, \overline{(2, 1)}, \overline{(-3, m)}, \overline{(-2, m)}, \overline{(3, m+2)}, \overline{(2, m+2)} \right\}$$

$$m^r = m + 2 \Rightarrow m^r - m - 2 = 0 \Rightarrow m \rightarrow -\frac{c}{a} = -\frac{2}{1} = -2$$

$$f(n) = \left\{ \overline{(3, m^r)}, \overline{(2, 1)}, \overline{(m, 2)}, \overline{(3, m+2)}, \overline{(-2, m)}, \overline{(-1, 3)} \right\}$$

$$m^r = m + 2 \Rightarrow m \rightarrow -1$$

$$\overline{(1, 2)} \rightarrow \overline{(1, 2)}$$

به ازای هیچ مقدار از m

سوال ۵

$$f(n) = \left\{ \overline{(1, a^r)}, \overline{(1, 3a-2)}, \overline{(a^r, 3a+2)} \right\}$$

$$a^r = 3a - 2 \Rightarrow a^r - 3a + 2 = 0 \rightarrow a \rightarrow \frac{c}{a} = \frac{2}{3}$$

سوال ۷

$$f(m) = \begin{cases} m^3 - 1 & m \leq 1 \\ am + b & 1 < m \leq 2 \\ m^3 & m > 2 \end{cases}$$

در صورت اول و دوم
تکرار دارد

$$\begin{aligned} 1 - 1 &= a + b \\ \Rightarrow -a &= +b \\ \Rightarrow \Lambda &= 2a + b \end{aligned}$$

$$\Lambda = a \Rightarrow b = -\Lambda$$

$$\Rightarrow a \times b = \Lambda \times (-\Lambda) = -\Lambda^2$$

سوال ۷

$$f(m) = \begin{cases} 2m - 3 & m \geq k \\ 4 - 3m & m < k \end{cases} \Rightarrow 2k - 3 = 4 - 3k \Rightarrow 5k = 7 \Rightarrow k = \frac{7}{5}$$

سوال ۸

$$\begin{aligned} y_1^3 - 4y_1 &= m_1^2 - 4m_1 + 3 & y_1^3 - 4y_1 &= m_1^2 - 4m_1 + 3 \\ y_2^3 - 4y_2 &= m_2^2 - 4m_2 + 3 & y_2^3 - 4y_2 &= m_2^2 - 4m_2 + 3 \\ (y_1 - y_2) &[(y_1^2 + y_1 y_2 + y_2^2) - 4] = 0 & \Rightarrow \Delta &= (y_1 - y_2)(y_1^2 + y_1 y_2 + y_2^2) - 4(y_1 - y_2) = 0 \\ &\Rightarrow (y_1^2 + y_1 y_2 + y_2^2 - 4) = 0 & \Rightarrow \Delta &= (y_1^2 + y_1 y_2 + y_2^2 - 4)(y_1 - y_2) = 0 \end{aligned}$$

ممكن است صفر شود

ج) $|y| = \sqrt{1 - \cos m} \rightarrow m = \frac{\pi}{2} \Rightarrow \cos \frac{\pi}{2} = 0 \Rightarrow y = 1$

د) $y^2 + m^2 + 2m + 1 = 0 \rightarrow y = 0, m = -1$

هـ) $m_{ext} = -1, m_{enl} = 0$

سوال ۹

$$\begin{aligned} \sqrt[3]{y} + m^2 &= 2m - 2 & \sqrt[3]{y_1} &= -m_1^2 + 2m_1 - 2 \\ \sqrt[3]{y_2} &= -m_2^2 + 2m_2 - 2 & \Rightarrow y_1 &= y_2 \\ y_1^3 + 2y_1 &= 5m_1 & m_1 &= m_2 \\ y_2^3 + 2y_2 &= 5m_2 & \Rightarrow y_1 &= y_2 \\ (y_1 - y_2)(y_1^2 + y_1 y_2 + y_2^2) &= 0 & \Rightarrow y_1 &= y_2 \\ y_1 - y_2 &= 0 \Rightarrow y_1 = y_2 & \Rightarrow y_1 &= y_2 \\ (y_1^2 + y_1 y_2 + y_2^2) &= 0 & \Rightarrow y_1 &= y_2 \end{aligned}$$

$$a) \quad m \sin y = y \sin m$$

$$m = 0 \quad \sin 0 = 0$$

$$y = 1 \quad 2 \quad 3 \quad 4$$

$$b) \quad \sqrt{\frac{m}{y}} + \sqrt{\frac{y}{m}}$$

$$= 2 \Rightarrow$$

$$\frac{\sqrt{m}}{\sqrt{y}} + \frac{\sqrt{y}}{\sqrt{m}} = 2 \Rightarrow$$

$$\frac{m+y}{\sqrt{m}\sqrt{y}} = 2$$

د

$$m+y = 2\sqrt{m}\sqrt{y} \Rightarrow \frac{m}{\sqrt{m}\sqrt{y}} = \frac{\sqrt{y}}{\sqrt{m}} \Rightarrow \frac{m_1}{y_1} = \frac{\sqrt{y_1}}{\sqrt{y_2}} = \frac{\sqrt{y_1}}{y_1} \cdot \frac{y_1}{y_2}$$

$$\frac{m_1}{\sqrt{m_1}} = \frac{\sqrt{y_1}}{y_1}$$

$$\frac{y_2}{y_2^2} = \frac{y_1}{y_2^2} \Rightarrow \frac{1}{y_2} = \frac{1}{y_1}$$

$$\Rightarrow y_1 = y_2$$

تلف است