

(1)

$$1) 2n^2 - 5n - 4 = 0 \rightarrow n^2 - 5n - 4 = 0 \rightarrow (n-9)(n+4) = 0$$

$$n = \frac{5 \pm \sqrt{25 + 16}}{2}$$

$$2) n^2 - 11n - 9 = 0 \rightarrow n^2 - 11n - 9 = 0 \rightarrow (n-9)(n+1) = 0$$

$$n = \frac{11 \pm \sqrt{121 + 36}}{2}$$

$$3) n^2 - 5n - 12 = 0 \rightarrow n^2 - 5n - 12 = 0 \rightarrow (n-9)(n+4) = 0$$

$$n = \frac{5 \pm \sqrt{25 + 48}}{2}$$

$$4) n^2 - 5n - 12 = 0 \rightarrow n^2 - 5n - 12 = 0 \rightarrow (n-9)(n+4) = 0$$

$$n = \frac{5 \pm \sqrt{25 + 48}}{2}$$

(2)

$$1) n^2 - 5n - 12 = 0 \rightarrow (n-9)(n+4) = 0$$

$$n = \frac{5 \pm \sqrt{25 + 48}}{2}$$

$$2) n^2 + 5n + 4 = 0 \rightarrow n^2 + 5n + 4 = 0 \rightarrow (n+4)(n+1) = 0$$

$$n = \frac{-5 \pm \sqrt{25 - 16}}{2}$$

$$3) n^2 + 5n + 4 = 0$$

$$\Delta = b^2 - 4ac \rightarrow (5)^2 - 4(1)(4) = 9$$

$$n = \frac{-5 \pm \sqrt{9}}{2}$$

$$4) n^2 + 5n - 2 = 0 \rightarrow \Delta = b^2 - 4ac \rightarrow (5)^2 - 4(1)(-2) = 33$$

$$n_{1,2} = \frac{-5 \pm \sqrt{33}}{2}$$

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

$$B = \{r, m\}$$

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

$$B \times B = \{(r, r), (r, m), (m, r), (m, m)\}$$

$$(A \times B) - B^c = \{(1, r), (1, m)\}$$

$$2) f(n) = \{(r, m^r), (r, 1), (-r, m), (-r, m), (r, m^r), (m, r)\}$$

$$m^r = m + r \rightarrow m^r - m - r = 0 \rightarrow (m - r)(m + 1) = 0$$

$$m = r - 1 \rightarrow \text{مقدار } m \text{ من } r \text{ کم شود}$$

$$3) g(n) = \{(r, m^r), (r, 1), (m, r), (r, m^r), (-r, m), (-1, r)\}$$

$$m^r = m + r \rightarrow m^r - m - r = 0 \rightarrow (m - r)(m + 1) = 0$$

$$m = r - 1 \rightarrow \text{مقدار } m \text{ من } r \text{ کم شود}$$

$$f(n) = \{(1, a^r), (1, ra - r), (a^r, ra + r)\}$$

$$a^r = ra - r \rightarrow a^r - ra + r = 0 \rightarrow (a - r)(a - 1) = 0$$

$$a = r - 1 \rightarrow \text{مقدار } a \text{ من } r \text{ کم شود}$$

$$\frac{a+r}{-1} = a + b \rightarrow a = -b$$

$$ra + b = 1 \rightarrow ra + b = 1$$

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

$$a = n$$

$$a + b = ?$$

$$1 + (-1) = 0$$

DAT

$$x^2 - y^2 = x^2 - y^2 \rightarrow \omega x = y \rightarrow \boxed{x = \frac{y}{\omega}} \quad (2)$$

$$1) \quad y^3 - 4y = y(y^2 - 4) = y(x^2 - 4) = yx^2 - 4y \quad \boxed{\text{اینجا نیست}} \quad (3)$$

چون در اینجا y را از x جدا کردیم و به y ضرایب x^2 و -4 داریم.

$$2) \quad |x| + |y| = 3 \xrightarrow{x=0} |y| = 3 \rightarrow y = \pm 3 \quad \boxed{\text{اینجا نیست}} \quad (4)$$

$$3) \quad |y| = \sqrt{1 - \cos x} \rightarrow \cos x < 1 \rightarrow y = \pm \sqrt{1 - \cos x} \quad \boxed{\text{اینجا نیست}} \quad (5)$$

$$4) \quad y^2 + x^2 + 2x + 1 = 0 \rightarrow y^2 + (x+1)^2 = 0 \rightarrow \begin{matrix} \text{دو مربع} \\ \text{مربع} \end{matrix}$$

چون $x > 0$ و $y > 0$ است.

در این صورت عدد حقیقی و مثبت است پس این عبارت $\boxed{\text{اینجا نیست}}$

$$5) \quad \sqrt{y} + x^2 = 2x - 2 \rightarrow \sqrt{y} = -x^2 + 2x - 2 = -(x^2 - 2x + 2) \quad \boxed{\text{اینجا نیست}} \quad (6)$$

$$6) \quad y^3 + 2y = \omega x \quad \text{باید با تعریف ریاض حل کنی!}$$

$$y(y^2 + 2) = \omega x \xrightarrow{x=0} y(y^2 + 2) = 0 \rightarrow \begin{matrix} y=0 \\ y^2 = -2 \rightarrow \text{حقیقی} \end{matrix} \quad \boxed{\text{اینجا نیست}} \quad (7)$$

$$7) \quad x \sin y = y \sin x \rightarrow \sin x = 0 \rightarrow x = y \rightarrow \boxed{\text{اینجا نیست}} \quad (8)$$

$$8) \quad \sqrt{\frac{x}{y}} + \sqrt{\frac{y}{x}} = 2 \quad \boxed{?}$$

9- الف) $\sqrt[3]{y} + x^2 = 2x - 2$

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

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

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

تأیید است!

9- ب) $y^3 + 2y = 2x$

$\int y_1^3 + 2y_1 = 2x_1$

$x_1 = x_2 \rightarrow y_1^3 + 2y_1 = y_2^3 + 2y_2$

$\int y_2^3 + 2y_2 = 2x_2$

$y_1^3 - y_2^3 + 2(y_1 - y_2) = 0 \rightarrow (y_1 - y_2)(\overset{I}{y_1^2 + y_1 y_2 + y_2^2} + \overset{II}{2}) = 0$

I $\rightarrow y_1 - y_2 = 0 \rightarrow y_1 = y_2$ ← زیرا این دو معادله است پس تقریباً برابرند

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

$\rightarrow y_1 = y_2$ تأیید است!

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

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

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

