

(1)

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

$$\boxed{n = \frac{2\omega - 4}{2}}$$

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

$$\boxed{n = \frac{2\omega - 4}{2}}$$

$$3) 2n^2 - \omega n - 4 = 0 \rightarrow n^2 - \omega n - 2 = 0 \rightarrow (n-4)(n+1) = 0$$

$$\boxed{n = \frac{2\omega - 4}{2}}$$

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

$$\boxed{n = \frac{2\omega - 4}{2}}$$

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

$$\boxed{n = \sqrt{1-1}}$$

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

$$\boxed{n = -\frac{\omega}{2} - \frac{4}{2}}$$

$$3) n^2 + \omega n + 4 = 0$$

$$\Delta = b^2 - 4ac \rightarrow \left(\frac{\omega}{2} \right)^2 - 4(1)(4) = -1$$

(No real roots)

$$4) n^2 + \omega n - 2 = 0 \rightarrow \Delta = b^2 - 4ac \rightarrow \left(\frac{\omega}{2} \right)^2 - 4(1)(-2) = \omega^2 + 8$$

$$n_{1,2} = \frac{-b \pm \sqrt{\Delta}}{2a} \rightarrow \boxed{\frac{-\omega \pm \sqrt{\omega^2 + 8}}{2}}$$

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

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

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

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

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

$$2) f(x) = \left\{ (x, m^x), (x, 1), (-x, m), (-x, m), (x, m^x), (m, x) \right\} \quad (4)$$

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

$$m = x - 1 \rightarrow x = 558$$

$$3) g(x) = \left\{ (x, m^x), (x, 1), (m, x), (x, m^x), (-x, m), (-1, x) \right\}$$

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

$$m = x - 1 \rightarrow \text{عدد اول } m \text{ مقرب به } x \text{ است}$$

$$f(x) = \left\{ (1, a^x), (1, a - x), (a^x, m + x) \right\}$$

(5)

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

$$a = x + 1 \rightarrow x = 1$$

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

$$x + b = 1 \rightarrow x = 1 - b$$

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

$$a = n$$

$$a + b = 0 \quad (6)$$

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

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