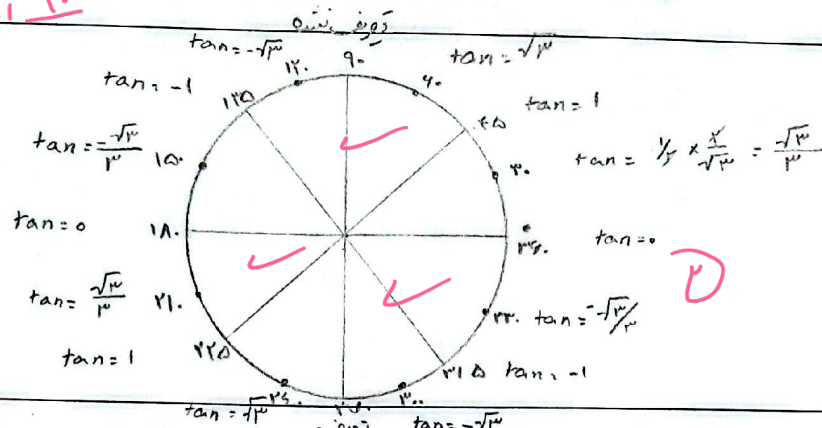


نام و نام خانوادگی درس کلاس پاسخنامه تشریحی تکلیف شماره ۲ نویسنده: آقای وکیل نورستانی



الف) $\frac{1}{\sqrt{3}} - 1 - 2 = -3 + \frac{1}{\sqrt{3}} = \boxed{-\frac{2\sqrt{3}}{\sqrt{3}}}$

ب) $\frac{\sqrt{3}}{3} + \frac{\sqrt{3}}{3} + 3 \times \frac{\sqrt{3}}{3} = \sqrt{3} + \frac{3\sqrt{3}}{3} \rightarrow \boxed{\frac{5\sqrt{3}}{3}}$

ج) $-\frac{\sqrt{3}}{3} + 3 \times \frac{\sqrt{3}}{3} + 2 \left(\frac{\sqrt{3}}{3} \right) = \boxed{\frac{4\sqrt{3}}{3}}$

د) $1 + \sin\left(\frac{\pi}{2}\right) = 1 + 1 = 2$

$a^2 + 4a = 2a + 2$

$a^2 + a - 2 = 0$

$(a + 2)(a - 1)$

$a = 2 \times$

$a = \frac{1}{2} \checkmark$

$2n + 1 + 1 \quad n \leq 1$

$f(1) = 2 + 3 = \boxed{5} \checkmark$

$\textcircled{L}$

$f(n) \rightarrow n^2 + 4n \quad n \geq 1$

$\hookrightarrow f(1) \rightarrow 1 + 4 = \boxed{5} \checkmark$

$n + 1 \geq 2 \quad n \geq 1$

$n + 1 \leq -2 \quad n \leq -3$

$n = -3 \rightarrow 1 - b = a - 9$

$\boxed{12 = a + b}$

الف) $n^2(n - 4) = 0 \rightarrow n = 0 \quad n = 4 \Rightarrow Df = \{0, 4\}$

ب) $\frac{1}{2n^3 + 4n^2 + 2n + 2} \rightarrow (n + 2)(2n^2 + 2) \rightarrow (n + 2)(2)(n^2 + 1)$
 $2n^2(n + 2) + 2(n + 2) \rightarrow n = -2 \rightarrow Df \rightarrow R - \{-2\}$

$$\text{ج) } n^2 - 1 > 0, n^2 > 1$$

$$n > 1 \quad n \leq -1 \quad / \quad n - 2 > 1, n > 2 \rightarrow Df: (2, +\infty)$$

$$\text{ب) } 4 - 3n > 0, 3n \leq 4 \rightarrow n \leq \frac{4}{3}$$

$$4n - 3 > 0, 4n > 3 \rightarrow n > \frac{3}{4} \rightarrow Df: (\frac{3}{4}, \frac{4}{3}]$$

$$12 - a = b - 4, 12 = a + b$$

$$\frac{b}{a} = \frac{4}{12} = \frac{1}{3}$$

$$y = \sqrt{4n - a} + \sqrt{b - 3n}$$

$$4n - a > 0, 4n > a, b - 3n > 0, 3n \leq b$$

$$x \geq \frac{a}{4}$$

$$x \leq \frac{b}{3}$$

$$\frac{a}{4} \leq x \leq \frac{b}{3}$$

$$\frac{a}{4} = 2, a = 8, \frac{b}{3} = 2, b = 6$$

$$\text{ج) } (n+1)(n-3) > 0, (n^2-9)(n^2-4) > 0$$

$$n = -1, n^2 = 1, n = \pm 1, n = 3, n^2 = 9, n = \pm 3$$

$$(-\infty, -3) \cup (-1, 1) \cup (3, +\infty)$$

$$\text{ب) } \frac{n^3 - 2n^2 - 5n + 4}{-n^2 + n^2} \rightarrow \frac{n^3 - 2n^2 - 5n + 4}{n^2 - n - 4}$$

$$(n-1)(n+2)(n-3) \rightarrow n \geq 1, n \geq -2, n \geq 3$$

$$\text{ج) } 2[n] - 2 > 0$$

$$2[n] > 2$$

$$[n] > 1 \rightarrow [n] \geq 2 \rightarrow Df: [2, +\infty)$$

9

$$Df: (-\infty, -3) \cup (-2, -1) \cup [1, 2] \cup [3, +\infty)$$

$$\text{ب) } 2[n] - 5 > 0$$

$$2[n] > 5, [n] > \frac{5}{2}, [n] \geq 3 \rightarrow Df: [3, +\infty)$$

$$\text{ج) } y \geq \sqrt{\frac{n+1}{|n-3|}} + \sqrt{\frac{4-n}{n^2+n+2}} \rightarrow \Delta < 0$$

$$n = 4, n^2 + n + 2 = 20$$

$$[-1, 3) \cup (3, 4] = Df$$

9

$$\text{ج) } y = \sqrt{[n] - 2} + \sqrt{2 - [n]}$$

$$[n] \geq 2$$

$$2 - [n] \geq 0, [n] \leq 2$$

$$Df: [2, 2]$$

10