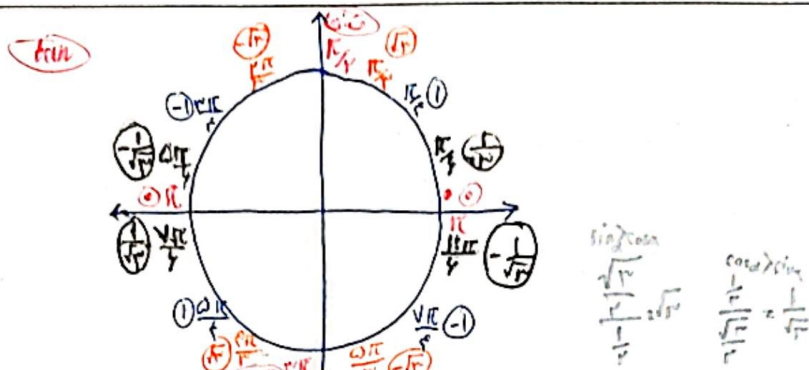


نام و نام خانوادگی شماره کلاس پاسخنامه تشریحی تکلیف شماره ۲



الف) $\frac{1}{\sqrt{2}} + (-1) + \frac{2 \cdot \frac{\sqrt{2}}{2}}{-\frac{1}{\sqrt{2}}} = \frac{1}{\sqrt{2}} - 1 - 2 = -\frac{5}{\sqrt{2}} = -2.5$

ب) $\left(-\frac{\sqrt{3}}{2}\right) + \frac{\sqrt{2}}{2} - 2 \cdot \left(-\frac{\sqrt{3}}{2}\right) = \frac{2\sqrt{3}}{2}$

ج) $\frac{-\frac{1}{2}}{\frac{1}{\sqrt{2}}} + 2 \cdot \left(\frac{-\frac{1}{2}}{-\frac{1}{\sqrt{2}}}\right) - 2 \cdot \left(\frac{\frac{1}{2}}{-\frac{1}{\sqrt{2}}}\right) = -\frac{1}{\sqrt{2}} + \frac{2}{\sqrt{2}} + \frac{2}{\sqrt{2}} = \frac{3}{\sqrt{2}} = \frac{3\sqrt{2}}{2}$

د) $\cos(0) + \sin\left(\frac{\pi}{2}\right) = 1 + 1 = 2$

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

$a^2 + a - 2 = 0$

$a = -2, 1$ $f(1) = 1 + 2 = 3$
 $G \cdot O \cdot E$
 $R \cdot S \cdot b \cdot f$

$|n+1| > 2 \rightarrow n+1 > 2 \rightarrow n > 1$
 $|n+1| < 2 \rightarrow n+1 < 2 \rightarrow n < 1$

$f(n) = \begin{cases} 2n^2 - b & |n+1| > 2 \\ a + 2n & |n+1| < 2 \end{cases}$

$x = -2 \rightarrow 1A - b = a - 4$

$12 = a + b$

الف) $x^2 - 2x^2 \neq 0$ $x^2(x-2) \neq 0$ $D_y = \mathbb{R} - \{0, 2\}$

ب) $2x^2 + (x^2 + 2x + 2) \neq 0$ $x \neq -2$ $D_y = \mathbb{R} - \{-2\}$

$2(x^2 + 2x^2 + x + 2) = 0$

$2(x^2(x+2) + x + 2) = 0$

$2 \cdot (x+2)(x^2+1) = 0$

$$\text{a)} \sqrt{x^2-1} + \sqrt{x-1} \quad D_y = [1, +\infty)$$

$x^2-1 > 0 \rightarrow x > 1$
 $x-1 \geq 0 \rightarrow x \geq 1$
 $x > 1 \rightarrow x \geq 1$

$$\text{b)} \sqrt{\frac{x^2-1}{x^2+1}} + \sqrt{\frac{x-1}{x+1}} \quad D_y = [-1, 1] \cup [1, +\infty) = [-1, +\infty)$$

$\frac{x^2-1}{x^2+1} \geq 0 \rightarrow x^2 \geq 1 \rightarrow x \leq -1 \text{ or } x \geq 1$
 $\frac{x-1}{x+1} \geq 0 \rightarrow x \geq 1 \text{ or } x < -1$
 $x \geq 1$

$$\sqrt{a^2+b^2} = \sqrt{a^2} + \sqrt{b^2}$$

$$y = \sqrt{4x-a} + \sqrt{b-5x}$$

$$f = \sqrt{4x-a} + \sqrt{b-5x} \quad b = 4 \quad \frac{b}{a} = \frac{4}{1} = 4$$

$$\text{a)} y = \sqrt{\frac{x^2-1}{x^2+1}} + \sqrt{\frac{x-1}{x+1}} \quad D_y = (-\infty, -1) \cup [1, +\infty) = \mathbb{R}$$

$$\text{b)} y = \sqrt{\frac{x^2-1}{x^2+1}} + \sqrt{\frac{x-1}{x+1}} \quad D_y = (-\infty, -1) \cup [1, +\infty) = \mathbb{R}$$

$$f(x) = \sqrt{x-1} + \sqrt{x+1} \quad D_y = [1, +\infty)$$

$$f(x) = \sqrt{x-1} + \sqrt{x+1} \quad D_y = [1, +\infty)$$

$$y = \sqrt{\frac{x+1}{x-1}} + \sqrt{\frac{x-1}{x+1}} \quad D_y = [-1, 1] \cup [1, +\infty) = [-1, +\infty)$$

$\frac{x+1}{x-1} \geq 0 \rightarrow x \leq -1 \text{ or } x > 1$
 $\frac{x-1}{x+1} \geq 0 \rightarrow x \geq 1 \text{ or } x < -1$
 $x \geq 1$