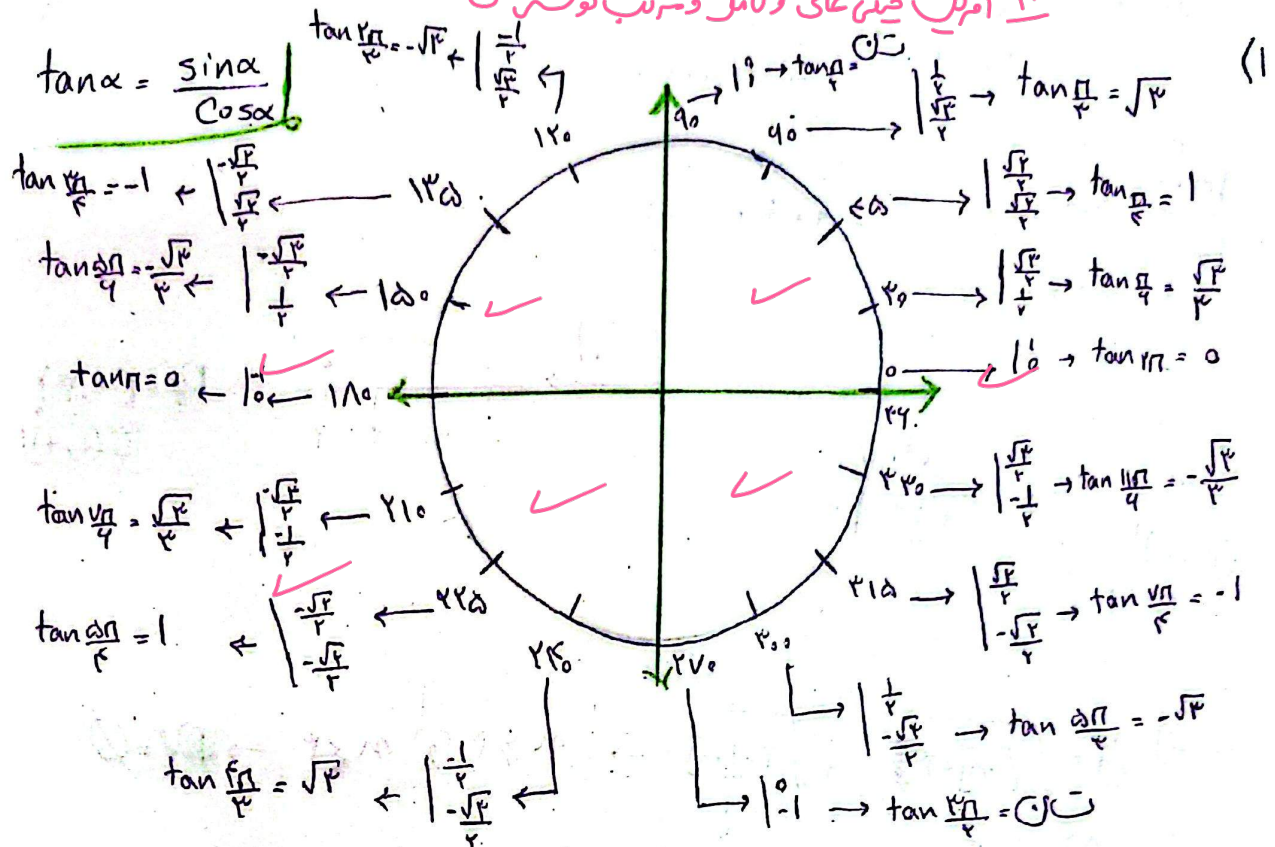


کلاس : یازدهم ریاضی C

شماره تکلیف : 2

نام و نام خانوادگی : فاطمه زهرا جمال زاده

۲. آفرین ضمیمه عالی و کامل و مرتب نوشتن



الف) $\sin \frac{\pi}{4} + \cos \frac{\pi}{4} + 2 \tan \frac{\pi}{4} = \frac{1}{\sqrt{2}} - \sqrt{2} - 2 = -\frac{2\sqrt{2}}{2}$ (۲)

ب) $-\cos \frac{5\pi}{4} + \sin \frac{3\pi}{4} - 3 \sin \frac{\pi}{4} = -(-\frac{\sqrt{2}}{2}) + \frac{\sqrt{2}}{2} - 3(\frac{\sqrt{2}}{2}) = \frac{2\sqrt{2}}{2}$

ج) $\cot \frac{\pi}{4} + 3 \cot \frac{\pi}{4} - 2 \tan \frac{5\pi}{4} = \frac{\sqrt{2}}{\sqrt{2}} + 3(\frac{\sqrt{2}}{\sqrt{2}}) - 2(-\frac{\sqrt{2}}{\sqrt{2}}) = \frac{4\sqrt{2}}{2}$

د) $\cos(\sin \pi) + \sin(\cos \frac{\pi}{4}) = 1 + 1 = 2$ (۲)

$f(a) = \begin{cases} a^2 + 4a & a \geq 1 \\ 2a + a + 2 & a < 1 \end{cases} \xrightarrow{a=a} a^2 + 4a = 2a + a + 2$ (۳)

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

$a = -2 \rightarrow \text{رد}$
 $a = 1 \rightarrow \text{رد}$

$f(1) = (1)^2 + 4(1) = 5$ (۲)

$f(m) = \begin{cases} 2m^2 - b & |m+1| \geq 2 \\ a + 2m & -3 \leq m \leq -1 \end{cases}$

$|m+1| \geq 2 \rightarrow m+1 \geq 2 \rightarrow m \geq 1$
 $m+1 \leq -2 \rightarrow m \leq -3$ (۴)

$m = -3 \rightarrow 2(9) - b = a - 9 \Rightarrow 18 + 9 = a + b \Rightarrow a + b = 27$ (۲)

$$\text{الف) } y = \frac{1}{n^2 - 4n^2} \rightarrow \frac{1}{n^2(n-4)} \rightarrow D_f = \mathbb{R} - \{0, 4\} \quad (5)$$

$$\text{ب) } y = \frac{1}{2n^2 + 4n^2 + 2n + 2} \rightarrow \frac{1}{(n+1)(2n^2+2)} \rightarrow D_f = \mathbb{R} - \{-1\}$$

$$\text{الف) } y = \sqrt{n^2 - 1} + \sqrt{n-2} \quad \left. \begin{array}{l} n^2 - 1 \geq 0 \rightarrow \frac{-1}{2} \leq \frac{1}{2} \\ n - 2 \geq 0 \rightarrow n \geq 2 \end{array} \right\} \rightarrow D_f = [2, +\infty)$$

$$\text{ب) } y = \frac{\sqrt{4-4n}}{\sqrt{4n-4}} \rightarrow \left. \begin{array}{l} 4-4n \geq 0 \rightarrow n \leq 1 \\ 4n-4 \geq 0 \rightarrow n \geq 1 \end{array} \right\} \rightarrow D_f = \left\{ \frac{1}{4}, 1 \right\}$$

$$\sqrt{4n-a} + \sqrt{b-4n} \rightarrow \left. \begin{array}{l} 4n-a \geq 0 \rightarrow n \geq \frac{a}{4} \\ b-4n \geq 0 \rightarrow -4n \geq -b \rightarrow n \leq \frac{b}{4} \end{array} \right\} \quad (v)$$

$$\left. \begin{array}{l} \frac{b}{4} = 1 \rightarrow b = 4 \\ \frac{a}{4} = 1 \rightarrow a = 16 \end{array} \right\} \rightarrow \frac{b}{a} = \frac{1}{4}$$

$$\text{الف) } y = \sqrt{\frac{n^2 - n - 4}{n^2 - 14n^2 + 49}} \Rightarrow \frac{(n-1)(n+1) - 4}{(n^2-9)(n^2-4)} \geq 0$$

$$\begin{array}{ccccccc} -3 & -1 & 1 & 3 & & & \\ + & - & + & - & + & - & + \end{array} \rightarrow D_f = (-\infty, -3) \cup (1, 3) \cup (3, +\infty)$$

$$\text{ب) } y = \sqrt{\frac{n^3 - 2n^2 - 5n + 4}{n^3 + 2n^2 - 5n - 4}} \rightarrow \frac{(n-1)(n-3)(n+4)}{(n+1)(n+3)(n-2)} \geq 0$$

$$\begin{array}{ccccccc} -3 & -1 & 1 & 2 & 3 & & \\ + & - & + & - & + & - & + \end{array} \rightarrow D_f = (-\infty, -3) \cup [-2, -1) \cup [1, 2) \cup [3, +\infty)$$

$$\text{الف) } \sqrt{2[n]-4} \quad 2[n]-4 \geq 0 \rightarrow [n] \geq 2 \rightarrow n \geq 2 \rightarrow D_f = [2, +\infty) \quad (9)$$

$$\text{ب) } \sqrt{2[n]-5} \quad 2[n]-5 \geq 0 \rightarrow [n] \geq \frac{5}{2} \rightarrow n \geq 3 \rightarrow D_f = [3, +\infty)$$

$$\begin{aligned}
 \text{ا) } y &= \sqrt{\frac{n+1}{|n-r|}} + \sqrt{\frac{y-n}{n^2+2n+2}} \quad (1) \\
 \frac{n+1}{|n-r|} &\geq 0 \rightarrow \frac{-1}{-1+\phi} + \dots \\
 \frac{y-n}{n^2+2n+2} &\geq 0 \rightarrow \frac{y}{+\phi-}
 \end{aligned}
 \left. \vphantom{\begin{aligned} \frac{n+1}{|n-r|} &\geq 0 \\ \frac{y-n}{n^2+2n+2} &\geq 0 \end{aligned}} \right\} \xrightarrow{\cap} D_f = [-1, r) \cup [r, y]$$

$\Delta < 0$
 $\alpha > 0$

$$\begin{aligned}
 \text{ب) } y &= \sqrt{[n]-r} + \sqrt{r-[n]} \rightarrow n \geq r \wedge n < r \rightarrow D_f = \emptyset \\
 n \geq r &\downarrow \\
 r \geq [n] &\rightarrow n < r
 \end{aligned}$$