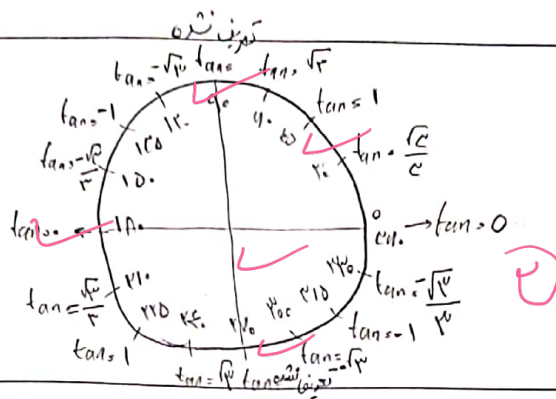


۱۹۷۵ آفرین

نام و نام خانوادگی: ... پاسخنانه تشریحی تکلیف شماره ... کلاس: ...



۱) $\sin \frac{\pi}{4} + \cos \pi + \tan \frac{5\pi}{6} = \frac{1}{\sqrt{2}} + (-1) + 2(-1) = -\frac{3}{\sqrt{2}}$

۲) $-\cos \frac{5\pi}{4} + \sin \frac{7\pi}{6} - 3\sin \frac{7\pi}{6} = \frac{\sqrt{2}}{2} + \frac{\sqrt{3}}{2} - 3(-\frac{\sqrt{3}}{2}) = \frac{5\sqrt{3} + \sqrt{2}}{2}$

۳) $\cot \frac{7\pi}{6} + 3\cot \frac{5\pi}{6} - 2\tan \frac{5\pi}{4} = \frac{-\sqrt{3}}{3} + 3(\frac{\sqrt{3}}{3}) - 2(-\frac{\sqrt{2}}{2}) = \frac{2\sqrt{3} + 2\sqrt{2}}{3}$

۴) $\cos(\sin \pi) + \sin(\pi \cos \frac{\pi}{4}) = \cos 0 + \sin \frac{\pi}{2} = 1 + 1 = 2$ دقت کنید: $\sin 90^\circ = 1$

$a^2 \in a \Rightarrow 2a + a + 2$
 $\Rightarrow a^2 + a - 2 = 0 \Rightarrow \begin{cases} a = 1 \\ a = -2 \end{cases}$

$f(x) = \begin{cases} x^2 + 2x - 1 & x > 1 \\ 2x + 3 & x \leq 1 \end{cases}$ ✓ $f(1) = 0$

۵-۲) $\cos(\sin \pi) + \sin(\pi \cos \frac{\pi}{4}) = \cos(0) + \sin(\frac{\pi}{2}) = 1 + 1 = 2$

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

$f(-1) = \begin{cases} 1 - b \\ a - 2 \end{cases}$ ✓ $\begin{cases} 1 - b = a - 2 \\ 2 = a - b \end{cases}$

الف) $y = \frac{1}{x^2 - 4x + 2}$

$x^2 - 4x + 2 \neq 0 \Rightarrow x \neq 2 \pm \sqrt{2}$ ✓ $D_f = \mathbb{R} - \{2 \pm \sqrt{2}\}$

ب) $y = \frac{1}{2x^2 + 4x + 2}$

$2x^2 + 4x + 2 \neq 0 \Rightarrow 2x^2 + 4x + 2 \neq 0$
 $\Rightarrow 2x(x+1) + 2(x+1) \neq 0 \Rightarrow (x+1)(2x+2) \neq 0$
 $\Rightarrow x \neq -1$

$D_f = \mathbb{R} - \{-1\}$

$\omega) y = \sqrt{u^2-1} + \sqrt{u-r}$ $u-r \geq 0 \Rightarrow u \geq r$ $u^2-1 \geq 0 \Rightarrow \begin{cases} u \geq 1 \\ u \leq -1 \end{cases}$ $\left. \begin{array}{l} u \geq r \\ u \geq 1 \\ u \leq -1 \end{array} \right\} D_f = [r, +\infty)$	6
$\therefore y = \frac{\sqrt{4-3u}}{\sqrt{4u-3}}$ $4-3u \geq 0 \Rightarrow u \leq \frac{4}{3}$ $4u-3 \geq 0 \Rightarrow u \geq \frac{3}{4}$ $\left. \begin{array}{l} u \leq \frac{4}{3} \\ u \geq \frac{3}{4} \end{array} \right\} D_f = \left[\frac{3}{4}, \frac{4}{3}\right]$	6
$y = \sqrt{4u-a} + \sqrt{b-2u}$ $4u-a \geq 0 \Rightarrow 4u = a$ $b-2u \geq 0 \Rightarrow b=4$ $\left. \begin{array}{l} 4u = a \\ b = 4 \end{array} \right\} \frac{b}{a} = \frac{1}{4}$	7
$\omega) y = \sqrt{\frac{u^2-u-4}{u^2-13u^2+4}}$ $u^2-u-4 \geq 0 \Rightarrow u \geq \frac{1}{2} + \sqrt{\frac{1}{4}+4} = \frac{1}{2} + \frac{\sqrt{17}}{2}$ $u^2-13u^2+4 \geq 0 \Rightarrow u \leq \frac{1}{2} - \sqrt{\frac{1}{4}-4} = \frac{1}{2} - \frac{\sqrt{17}}{2}$ $D_f = (-\infty, \frac{1}{2} - \frac{\sqrt{17}}{2}) \cup (\frac{1}{2} + \frac{\sqrt{17}}{2}, +\infty)$	8
$\therefore y = \sqrt{\frac{u^2-2u^2-8u+4}{u^2+2u^2-8u-4}}$ $(u-1)(u+2)(u-2)$ $(u+1)(u+2)(u+4)$ $D_f = (-\infty, -1) \cup (-2, -4) \cup (1, 2) \cup (4, +\infty)$	8
$\omega) y = \sqrt{r[u]} + \sqrt{r[u]-5}$ $r[u] - 5 \geq 0 \Rightarrow [u] \geq 5 \Rightarrow u \geq 5 = D_f$	9
$\therefore y = \sqrt{r[u]-5}$ $r[u]-5 \geq 0 \Rightarrow [u] \geq 5 \Rightarrow u \geq 5 = D_f$	9
$\omega) y = \sqrt{\frac{u+1}{u-3}} + \sqrt{\frac{4-u}{u^2+2u+5}}$ $\frac{u+1}{u-3} \geq 0 \Rightarrow u \geq -1 \text{ or } u < 3$ $\frac{4-u}{u^2+2u+5} \geq 0 \Rightarrow u \leq 4$ $\left. \begin{array}{l} u \geq -1 \text{ or } u < 3 \\ u \leq 4 \end{array} \right\} D_f = [4, +\infty)$	10
$\therefore y = \sqrt{[u]-5} + \sqrt{r-[u]}$ $[u] \geq 5 \Rightarrow u \geq 5$ $[u] \leq 5 \Rightarrow u < 5$ $\left. \begin{array}{l} u \geq 5 \\ u < 5 \end{array} \right\} D_f = \emptyset$	10