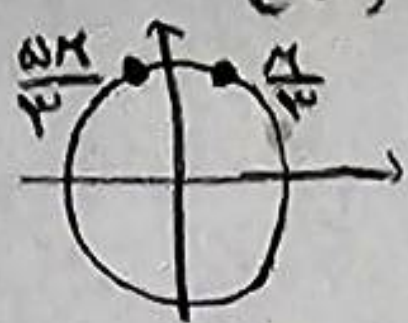


نام و نام خانوادگی: پاسخنامه تشریحی تکلیف شماره ... کلاس ...

$$\Lambda \cos x - \tan^2 x = 1 \Rightarrow \Lambda \cos x - \frac{1 - \cos^2 x}{\cos^2 x} = 1 \Rightarrow \Lambda \cos^3 x - 1 + \cos^2 x = \cos^2 x \Rightarrow$$

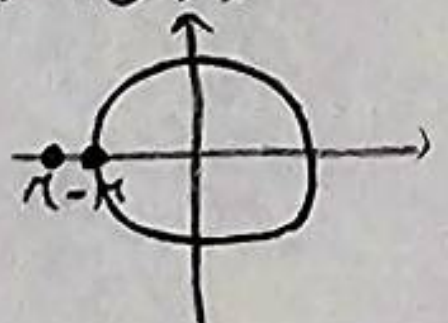
$$\cos x = \sqrt[3]{\frac{1}{\Lambda}} = \frac{1}{4}$$



پاسخ: $\frac{1}{4}$

$$5 \sin^2 x + 7 \cos^2 x = -2 \Rightarrow \Lambda \cos^3 x - 4 \cos x - 5 \cos^2 x + 7 = 0 \Rightarrow (\cos x + 1)(\Lambda \cos^2 x - 13 \cos x + 7) = 0$$

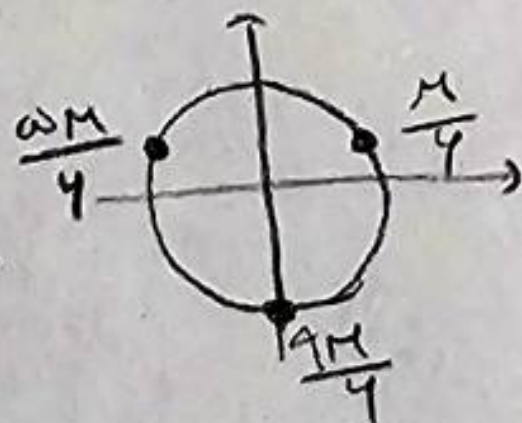
$$\Rightarrow \cos x = -1$$



پاسخ: $\frac{1}{4}$

$$7 \sin x \cos^2 x + \sin x = 1 \Rightarrow 7 \sin x - 7 \sin^3 x + \sin x = 1 \Rightarrow 8 \sin x - 7 \sin^3 x = 1 \Rightarrow \sin^3 x = 1$$

$$3x = 2k\pi + \frac{\pi}{4} \Rightarrow x = \frac{2k\pi + \pi}{4}$$



$$\frac{5\pi}{4} + \frac{\pi}{4} + \frac{9\pi}{4} = \frac{15\pi}{4} = \frac{5\pi}{2}$$

$$\frac{1}{\sin(\frac{\pi}{4} + 2x)} + \frac{1}{\cos(\frac{\pi}{4} + 2x)} = 0 \Rightarrow \frac{1}{\cos^2 x} = \frac{1}{\sin^2 x} \Rightarrow \sin^2 x = \cos^2 x \Rightarrow \sin^2 x = 7 \sin^2 x \cos^2 x$$

$$7x = \frac{2\pi}{3} \Rightarrow \tan \frac{7\pi}{3} = -\tan \frac{\pi}{3} = -\frac{1}{\sqrt{3}}$$

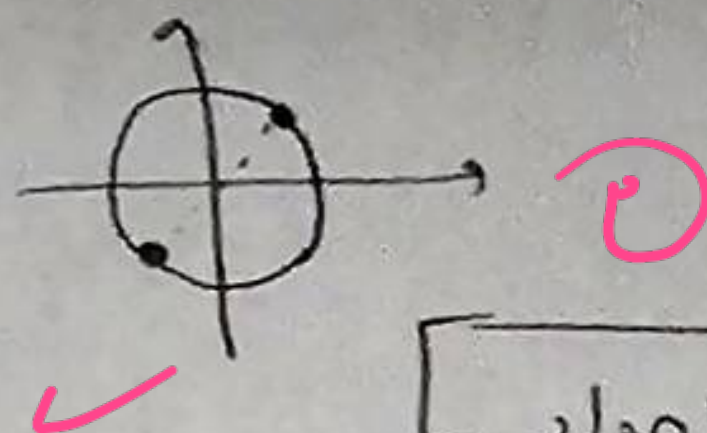
$$\sin^2 x = \frac{1}{4} \Rightarrow x = \frac{\pi}{4} + k\pi \Rightarrow \frac{\pi}{4}$$

$$m(\cos x - \sin x) - 3\sqrt{4} \sin^2 x \cos(\pi + \frac{\pi}{4}) = \frac{\sqrt{3}}{4} = \frac{\sqrt{2}}{4} (\cos x - \sin x) \Rightarrow \cos x - \sin x = \frac{2}{\sqrt{4}}$$

$$\Rightarrow \sqrt{4} = m(\frac{2}{\sqrt{4}}) - 3\sqrt{4}(\frac{1}{4}) \Rightarrow 2\sqrt{4} = \frac{2m}{\sqrt{4}} - \frac{3\sqrt{4}}{4} \Rightarrow m = 4$$

$$\sin\left(x + \frac{\pi}{4}\right) \cos\left(x - \frac{\pi}{4}\right) = 1 \Rightarrow \sin\left(x + \frac{\pi}{4}\right) \cdot \sin\left(x + \frac{\pi}{4}\right) = 1 \Rightarrow \sin^2\left(x + \frac{\pi}{4}\right) = 1 \Rightarrow x + \frac{\pi}{4} = k\pi + \frac{\pi}{4}$$

$$\Rightarrow x = k\pi + \frac{\pi}{4}$$



جواب

$$\sin x + \sqrt{3} \cos x = \sqrt{2} \Rightarrow \frac{1}{2} \sin x + \frac{\sqrt{3}}{2} \cos x = \frac{\sqrt{2}}{2} \Rightarrow \cos x = \frac{1}{2}, \sin x = \frac{\sqrt{3}}{2}$$

$$x = \frac{\pi}{3}$$

$$\Rightarrow \cos \frac{\pi}{4} \sin x + \sin x \cos \frac{\pi}{4} = \frac{\sqrt{2}}{2} \Rightarrow \sin\left(x + \frac{\pi}{4}\right) = \frac{\sqrt{2}}{2}$$

$$x + \frac{\pi}{4} = 2k\pi + \frac{\pi}{4} \Rightarrow x = 2k\pi \Rightarrow x = -\frac{\pi}{12}, \frac{5\pi}{12}$$

$$x + \frac{\pi}{4} = 2k\pi + \frac{3\pi}{4} \Rightarrow x = 2k\pi + \frac{\pi}{2} \Rightarrow x = \frac{5\pi}{12}, \frac{13\pi}{12}$$

$$2 \sin x \sin\left(\frac{5\pi}{4} - x\right) = 1 \Rightarrow -2(\sin x \cos x) = 1 \Rightarrow -2 \sin^2 x = 1 \Rightarrow \sin^2 x = -\frac{1}{2}$$

$$2x = 2k\pi + \frac{3\pi}{4} \Rightarrow x = \frac{3\pi}{8} + k\pi \Rightarrow x = \frac{3\pi}{8}, \frac{11\pi}{8}$$

$$2x = 2k\pi + \frac{7\pi}{4} \Rightarrow x = \frac{7\pi}{8} + k\pi \Rightarrow x = \frac{7\pi}{8}, \frac{15\pi}{8}$$

$$\frac{(1 + \cos(2x))}{2} \cdot \frac{(1 + \cos(2y))}{2} \cdot \frac{(1 + \cos(2z))}{2} = \frac{1}{8} \Rightarrow \cos^2 x \cos^2 y \cos^2 z = \frac{1}{8} \Rightarrow |\cos x \cos y \cos z| = \frac{1}{2}$$

$$\Rightarrow \frac{1}{2} (2 \sin x \cos x) (\cos^2 y \sin^2 z) = |\sin x| \Rightarrow \frac{1}{2} (2 \sin x \cos x \cos^2 y \sin^2 z) = |\sin x|$$

$$\Rightarrow |\sin x \cos x \cos^2 y \sin^2 z| = |\sin x| \Rightarrow |\sin x| \neq 0 \Rightarrow \sin x \cos x \cos^2 y \sin^2 z = \pm \sin x \Rightarrow \sin x \cos x \cos^2 y \sin^2 z = \sin x$$

$$\sin x = -\sin x = \sin(-x) \Rightarrow x = \frac{3\pi}{4}, x = \frac{5\pi}{4} \Rightarrow x = \frac{3\pi}{4}, \frac{5\pi}{4}$$

$$\tan^2 x + \tan^2 y = 1 \Rightarrow \tan^2 x = \frac{1}{\tan^2 y} \Rightarrow \tan^2 x = \cot^2 y \Rightarrow \tan^2 x = \tan^2\left(\frac{\pi}{2} - y\right)$$

$$\Rightarrow x = k\pi + \frac{\pi}{4} - y \Rightarrow x = \frac{3\pi}{4} - y, \frac{5\pi}{4} - y, \frac{7\pi}{4} - y, \frac{9\pi}{4} - y$$

$$\frac{3\pi}{4} + \frac{5\pi}{4} + \frac{7\pi}{4} + \frac{9\pi}{4} = \frac{24\pi}{4} = 6\pi$$