

١٧) تطیف سياره

پروپان (نیمسری) - دارنده دفتر A

$$\Lambda \cos x - \tan^2 x = 1 \rightarrow \Lambda \cos x = 1 + \tan^2 x \rightarrow \Lambda \cos x = \frac{1}{\cos^2 x} \rightarrow \Lambda \cos^3 x = 1 \quad (\text{سوال 1})$$

$$\rightarrow \cos^3 x = \frac{1}{\Lambda} \rightarrow \cos x = \frac{1}{\sqrt[3]{\Lambda}} \Rightarrow x = \frac{\pi}{3}, \frac{2\pi}{3} \rightarrow \text{جواب}$$

$$\Delta \sin^3 x + \sqrt[3]{\Lambda} \cos(\sqrt[3]{\Lambda} x) = -\sqrt[3]{\Lambda} \rightarrow \Delta(1 - \cos^3 x) + \sqrt[3]{\Lambda} (\sqrt[3]{\Lambda} \cos^3 x - \sqrt[3]{\Lambda} \cos x) = -\sqrt[3]{\Lambda} \quad (\text{سوال 2})$$

$$\rightarrow \Delta - \Delta \cos^3 x + \Lambda \cos^3 x - \sqrt[3]{\Lambda} \cos x + \sqrt[3]{\Lambda} = 0 \rightarrow \Lambda \cos^3 x - \Delta \cos^3 x - \sqrt[3]{\Lambda} \cos x + \sqrt[3]{\Lambda} = 0 \quad \div (\cos^3 x + 1)$$

$$(\cos x + 1)(\Lambda \cos^2 x - \Delta \cos^2 x - \sqrt[3]{\Lambda} \cos x + \sqrt[3]{\Lambda}) = 0 \rightarrow \cos x + 1 = 0 \rightarrow \cos x = -1 \rightarrow x = -\pi, \pi \rightarrow \text{جواب}$$

$$\sqrt[3]{\Lambda} \sin(x) \cos(\sqrt[3]{\Lambda} x) + \sin(x) = 1 \rightarrow \sin(x)(\sqrt[3]{\Lambda} \cos(\sqrt[3]{\Lambda} x) + 1) = 1 \rightarrow \sin x (\sqrt[3]{\Lambda} (1 - \sqrt[3]{\Lambda} \sin^2 x) + 1) = 1 \quad (\text{سوال 3})$$

$$= \sin x (\sqrt[3]{\Lambda} - \sqrt[3]{\Lambda}^2 \sin^2 x + 1) = 1 \rightarrow -\sqrt[3]{\Lambda}^2 \sin^3 x + \sqrt[3]{\Lambda} \sin x - 1 = 0 \quad \div (\sin^3 x + 1) \quad \begin{matrix} \sin x = -1 \\ \sin x = \frac{1}{\sqrt[3]{\Lambda}} \end{matrix}$$

$$\left. \begin{array}{l} \sin x = -1 \rightarrow x = \frac{3\pi}{2} \\ \sin x = \frac{1}{\sqrt[3]{\Lambda}} \rightarrow x = \frac{\pi}{3}, \frac{2\pi}{3} \end{array} \right\} \frac{\pi}{3} + \frac{2\pi}{3} + \frac{3\pi}{2} = \frac{17\pi}{6}$$

$$\frac{1}{\sin(\frac{\pi + \sqrt[3]{\Lambda} x}{\sqrt[3]{\Lambda}})} + \frac{1}{\cos(\frac{\pi + \sqrt[3]{\Lambda} x}{\sqrt[3]{\Lambda}})} = \frac{1}{\sin(\frac{\pi}{\sqrt[3]{\Lambda}} + x)} + \frac{1}{\cos(\frac{\pi}{\sqrt[3]{\Lambda}} + x)} = \frac{1}{\cos \sqrt[3]{\Lambda} x} + \frac{1}{-\sin \sqrt[3]{\Lambda} x} \quad (\text{سوال 4})$$

$$\Rightarrow \frac{-\sin \sqrt[3]{\Lambda} x + \cos \sqrt[3]{\Lambda} x}{\cos \sqrt[3]{\Lambda} x - \sin \sqrt[3]{\Lambda} x} = 0 \rightarrow -\sin \sqrt[3]{\Lambda} x + \cos \sqrt[3]{\Lambda} x = 0 \rightarrow -\sqrt[3]{\Lambda} \sin^2 x \cos \sqrt[3]{\Lambda} x + \cos^2 \sqrt[3]{\Lambda} x = 0$$

$$\rightarrow \cos^2 x (-\sqrt[3]{\Lambda} \sin^2 x + 1) = 0 \quad \begin{cases} \cos^2 x = 0 \rightarrow \sqrt[3]{\Lambda} x = \frac{\pi}{2} \rightarrow x = \frac{\pi}{2} \rightarrow \text{رد} \\ -\sqrt[3]{\Lambda} \sin^2 x = -1 \rightarrow \sin^2 x = \frac{1}{\sqrt[3]{\Lambda}} \rightarrow x = \frac{\pi}{3}, \frac{2\pi}{3} \rightarrow \alpha = \frac{5\pi}{4} - \frac{\pi}{4} = \frac{4\pi}{4} \end{cases}$$

$$\rightarrow \tan \frac{4\pi}{4} = \sqrt[3]{\Lambda}$$

s.a.m

$$\cos\left(x + \frac{\pi}{4}\right) = \frac{1}{\sqrt{2}} \rightarrow \cos x \cos \frac{\pi}{4} - \sin x \sin \frac{\pi}{4} = \frac{\sqrt{2}}{2} \quad (1) \text{ سوال}$$

$$\rightarrow \frac{\sqrt{2}}{2} (\cos x - \sin x) = \frac{\sqrt{2}}{2} \rightarrow \cos x - \sin x = \frac{\sqrt{2}}{2} = \frac{\sqrt{2}\sqrt{2}}{2\sqrt{2}} = \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{\sqrt{2}}$$

$$\rightarrow (\cos x - \sin x)^2 = \cos^2 x - 2 \cos x \sin x + \sin^2 x = \frac{2}{2} \rightarrow \sin 2x = \frac{2}{2} = \frac{1}{1}$$

$$\rightarrow m\left(\frac{\sqrt{2}}{2}\right) - 2\sqrt{2}\left(\frac{1}{2}\right) = \sqrt{2} \rightarrow m\frac{\sqrt{2}}{2} = 2\sqrt{2} \rightarrow \boxed{m = 4}$$

$$\sin a \cos b = \frac{1}{2} (\sin(a+b) + \sin(a-b)) \quad (2) \text{ سوال}$$

$$\rightarrow \sin\left(x + \frac{\pi}{4}\right) \cos\left(x - \frac{\pi}{4}\right) = \frac{1}{2} (\sin\left(2x - \frac{\pi}{4}\right) + \sin\left(\frac{\pi}{2}\right)) = 1 \rightarrow \sin\left(2x - \frac{\pi}{4}\right) = 1$$

$$\rightarrow 2x - \frac{\pi}{4} = \frac{\pi}{2} \rightarrow 2x = \frac{3\pi}{4} \rightarrow x = \frac{3\pi}{8} = \frac{\pi}{2.5}$$

$$a \sin x + b \cos x = \frac{a}{|a|} \sqrt{a^2 + b^2} \sin\left(x + \alpha\right)^{\tan \frac{b}{a}} \quad (3) \text{ سوال}$$

$$\rightarrow \sin x + \sqrt{2} \cos x = 1 \rightarrow \frac{1}{\sqrt{1+2}} \sin\left(x + \frac{\pi}{4}\right) = \frac{1}{\sqrt{3}} \rightarrow \sin\left(x + \frac{\pi}{4}\right) = \frac{\sqrt{3}}{\sqrt{3}}$$

$$\left. \begin{aligned} \rightarrow x + \frac{\pi}{4} &= \frac{\pi}{2} \rightarrow x = \frac{\pi}{2} - \frac{\pi}{4} = \frac{\pi}{4} \\ \rightarrow x + \frac{\pi}{4} &= \frac{3\pi}{2} \rightarrow x = \frac{3\pi}{2} - \frac{\pi}{4} = \frac{5\pi}{4} \end{aligned} \right\} \frac{-\pi}{11} + \frac{5\pi}{11} = \frac{4\pi}{11} = \frac{\pi}{2.75}$$

$$f \sin x \sin\left(\frac{3\pi}{4} - x\right) = 1 \rightarrow -f \sin x \cos x = 1 \rightarrow -f (\sin x \cos x) = 1 \quad (4) \text{ سوال}$$

$$\rightarrow -f \sin 2x = 1 \rightarrow \sin 2x = -\frac{1}{f} \left. \begin{aligned} 2x &= \frac{11\pi}{6} \rightarrow x = \frac{11\pi}{12} \\ 2x &= \frac{7\pi}{6} \rightarrow x = \frac{7\pi}{12} \end{aligned} \right\} \frac{11\pi}{12} + \frac{7\pi}{12} = \frac{18\pi}{12} = \frac{3\pi}{2}$$