

$$\text{الف) } \tan \frac{11\pi}{4} + \sin \frac{15\pi}{4} \cos \frac{13\pi}{4} = -\tan \frac{\pi}{4} + (-\sin \frac{\pi}{4})(-\cos \frac{\pi}{4}) \quad -1$$

$$\begin{array}{ccc} \downarrow & \downarrow & \downarrow \\ 3\pi - \frac{\pi}{4} & 4\pi - \frac{\pi}{4} & 3\pi + \frac{\pi}{4} \end{array} \quad -1 + \left(-\frac{\sqrt{2}}{2} \times -\frac{\sqrt{2}}{2}\right) = -1 + \frac{1}{2} = -\frac{1}{2}$$

$$\text{ب) } \tan \frac{17\pi}{9} \sin \frac{11\pi}{3} + \cos \frac{10\pi}{3} = \tan \frac{\pi}{9} \times (-\sin \frac{\pi}{3}) - \cos \frac{\pi}{3}$$

$$\begin{array}{ccc} \downarrow & \downarrow & \downarrow \\ 3\pi - \frac{\pi}{9} & 4\pi - \frac{\pi}{3} & 3\pi + \frac{\pi}{3} \end{array} \quad -\frac{\sqrt{3}}{3} \times -\frac{\sqrt{3}}{2} - \frac{1}{2} = 0$$

$$\cot = \frac{\cos}{\sin} = 2 \quad 2 \sin = \cos \quad \frac{2 \cos - \sin}{\cos + \sin} = \frac{2(2 \sin) - \sin}{2 \sin + \sin} = \frac{3 \sin}{3 \sin} = 1$$

$$\sin a = 2 \cos a \rightarrow \tan a = 2 \quad \begin{array}{c} \sqrt{5} \\ \nearrow a \\ 1 \end{array} \quad \cos = \frac{1}{\sqrt{5}} \xrightarrow{\text{بجای}} -\frac{1}{\sqrt{5}} \quad -3$$

$$\cos \left(\frac{11\pi}{4} + a \right) = \cos \frac{11\pi}{4} \cos a - \sin \frac{11\pi}{4} \sin a$$

$$\begin{array}{ccc} \downarrow & \downarrow & \downarrow \\ 3\pi - \frac{\pi}{4} & & 3\pi - \frac{\pi}{4} \end{array}$$

$$\begin{array}{c} 10 \\ \nearrow a \\ \sqrt{5} \end{array} \quad \cos a = \frac{-\sqrt{5}}{10} \quad -\frac{\sqrt{2}}{2} \times \frac{-\sqrt{5}}{10} - \frac{\sqrt{2}}{2} \times \frac{\sqrt{2}}{10}$$

$$\frac{\sqrt{10}}{20} - \frac{2}{20} = \frac{\sqrt{10} - 2}{20}$$

$$\sin \left(\frac{13\pi}{4} + a \right) = \sin \frac{13\pi}{4} \cos a + \sin a \cos \frac{13\pi}{4} \quad \text{ب)$$

$$\begin{array}{c} 5\sqrt{2} \\ \nearrow \\ 5 \end{array} \quad \sin a = \frac{1}{5\sqrt{2}} \quad -\frac{\sqrt{2}}{2} \times \frac{1}{5\sqrt{2}} + \frac{1}{5\sqrt{2}} \times \frac{-\sqrt{2}}{2} = \frac{-1}{10} + \frac{-1}{10}$$

$$\cos a = \frac{V}{5\sqrt{2}} = -\frac{1}{10}$$

$$2 \sin^2 + \cos^2 = \frac{4}{5} \rightarrow \sin^2 + \sin^2 + \cos^2 = \frac{4}{5} \Rightarrow \sin^2 = \frac{1}{5} \quad -5$$

$$1 + \cot^2 = 5 \rightarrow \cot^2 = 4 \rightarrow \tan^2 = \frac{1}{4}$$

$$\frac{1}{\sqrt{3}} \times 6 \times \sqrt{3} \times \sin \alpha = 4, \Delta \Rightarrow -3\sqrt{3} \sin \alpha = 4, \Delta \quad -9$$

$$\sin \alpha = \frac{4, \Delta}{3\sqrt{3}} = \frac{1, \Delta}{\sqrt{3}} = \frac{3}{2\sqrt{3}} = \frac{\sqrt{3}}{2} \quad \begin{matrix} 60^\circ \\ 120^\circ \end{matrix} \quad \frac{120}{60} = 2$$

$$2K \times 3K \times \sin 120^\circ = 44 \Rightarrow 6K^2 \times \frac{1}{2} = 44 \Rightarrow K^2 = 11 \Rightarrow K = 3\sqrt{2} \quad -V$$

$$\text{مساحت} = 2(2K + 2K) = 2(-2 \times 3\sqrt{2} + 3 \times 3\sqrt{2}) = 30\sqrt{2}$$

$$\frac{1}{\sqrt{3}} \times V \times \Delta \sin A - \frac{1}{\sqrt{3}} \times V \times 4 \sin A = 1, V \Delta \quad -1$$

$$\frac{V}{\sqrt{3}} \sin A = \frac{V}{\sqrt{3}} \Rightarrow \sin A = \frac{1}{\sqrt{3}} \Rightarrow A \quad \begin{matrix} 35^\circ \text{ و } 64^\circ \checkmark \\ 125^\circ \text{ و } 145^\circ \times \end{matrix} \quad \tan 35^\circ = \frac{\sqrt{3}}{3}$$

$$2BN = 3NC \Rightarrow BN = 2K \quad NC = 2K \quad \frac{S_{\triangle ABC}}{S_{\triangle MNV}} = \frac{\frac{1}{2} \times AB \times \Delta K \times \sin B}{\frac{1}{2} \times MD \times 2K \times \sin B} = 3 \Rightarrow$$

$$4MB = \Delta AB \quad MB = \Delta x \quad AM = AB - MB = 4y \quad AB = 9y$$

$$\frac{BM}{AM} = \frac{\Delta x}{4y} = \frac{\Delta}{4}$$

$$\frac{1}{\sqrt{\cos^2 \alpha}} - \tan \alpha = \frac{1 + \sin \alpha}{|\cos \alpha|} \Rightarrow \frac{1}{|\cos \alpha|} - \frac{1 + \sin \alpha}{|\cos \alpha|} = \frac{\sin \alpha}{\cos \alpha} \quad -10$$

$$\Rightarrow \frac{-\sin^2 \alpha}{|\cos \alpha|} = \frac{\sin \alpha}{\cos \alpha} \Rightarrow -\sin \alpha \cos \alpha = \sin \alpha |\cos \alpha| \Rightarrow -\cos \alpha = |\cos \alpha|$$

$$\frac{|\sin \alpha|}{\cos \alpha} = -\frac{1}{\cot \alpha} \Rightarrow \frac{|\sin \alpha|}{\cos \alpha} = \frac{-\sin \alpha}{\cos \alpha} \Rightarrow |\sin \alpha| = -\sin \alpha$$

$$\left. \begin{matrix} \sin \rightarrow \text{منفی} \\ \cos \rightarrow \text{منفی} \end{matrix} \right\} \Rightarrow \text{برای سوم} \quad \sin \alpha \rightarrow \text{منفی است}$$