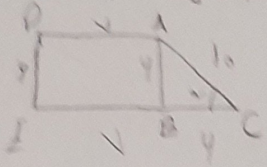


(الف) $\frac{27}{180} = \frac{x}{\pi}$ $\frac{3\pi}{20} = x$	(ب) $\frac{45}{180} = \frac{x}{\pi}$ $\frac{45}{36} \pi = x$	(ج) $\frac{5\pi}{12} = \frac{x}{180}$ $x = 75^\circ$	(د) $\frac{4\pi}{9} = \frac{x}{180}$ $x = 180^\circ$	۱
۲ $\frac{120a}{9} = \frac{120a}{1800} = \frac{2a}{45} = \frac{x}{180} \rightarrow x = 120a$ $\frac{a\pi}{\frac{\pi}{4}} = \frac{a}{\frac{1}{4}} = \frac{x}{180} \rightarrow x = 22,5a$ $10a + 12,5a + 22,5a = 180$ $45a = 180 \rightarrow a = 4^\circ$				۲
(الف) $\left(\frac{1}{2} \times \frac{\sqrt{3}}{2}\right) - \left(\frac{\sqrt{3}}{2} \times \frac{1}{2}\right) - 1 + 2 = 1$				۳
(ب) $\frac{\frac{3}{9} + 1 + 3}{\sqrt{3} - \frac{\sqrt{3}}{2}} = \frac{\frac{13}{3}}{\frac{2\sqrt{3}}{2}} = \frac{13}{2\sqrt{3}}$				۳
۴ $-\left(\frac{1}{2} \times \frac{1}{2}\right) + \left(\frac{\sqrt{3}}{2} \times \frac{\sqrt{3}}{2}\right) = -\frac{1}{4} + \frac{3}{4} = \frac{2}{4} \rightarrow \pm \frac{\sqrt{2}}{2} = \sin \theta$ $\tan \theta = 1 \leq -1$ $135^\circ, 225^\circ, 135^\circ, 225^\circ$				۴
۵ $\frac{\frac{2\sqrt{3}}{3} \left(\frac{2}{3}\right)}{-\frac{1}{3}} = \frac{\frac{4\sqrt{3}}{3}}{-\frac{1}{3}} = \frac{4\sqrt{3}}{-1} = -4\sqrt{3} = \tan \theta$ $\frac{30}{180} = \frac{\pi}{3} \rightarrow \frac{3\pi}{18} = \frac{\pi}{6}$ $150^\circ = \theta$				۵

$$1 + \tan^2 \theta = \frac{1}{\cos^2 \theta} \rightarrow \frac{1}{\frac{1}{14}} = \sec^2 \theta \rightarrow \sec \theta = \frac{1}{\sqrt{14}}$$

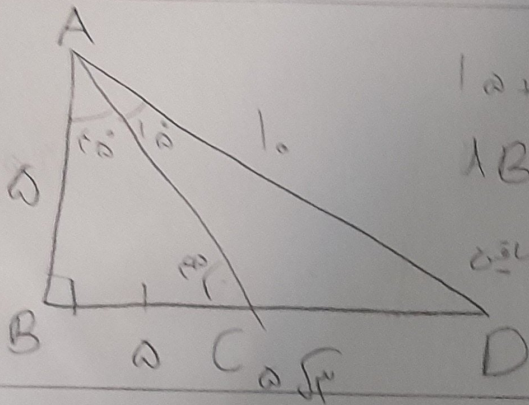
$$\cos^2 \theta + \sin^2 \theta = 1 \rightarrow \frac{1}{14} + \frac{r^2}{14} = 1 \rightarrow \sin \theta = \frac{\sqrt{13}}{\sqrt{14}}$$

$$\frac{\frac{\sqrt{13}}{\sqrt{14}}}{\frac{1}{\sqrt{14}}} = \frac{\frac{\sqrt{13}-1}{\sqrt{14}}}{\frac{\sqrt{13}-1}{\sqrt{14}}} = \frac{\sqrt{13}-1}{\sqrt{13}-1}$$



$$\frac{AB}{AC} = \frac{4}{10}$$

$$14 = 4 + 4 + 10 + 4 + 4 = 14$$



$$10 + 4 = 14$$

$$AB = 4$$

حل المسألة

$$BC = 4 \rightarrow CD = 10\sqrt{2} - 4$$

$$\text{For } \sin \theta \text{ and } \cos \theta$$

$$\theta = \frac{1}{\sqrt{14}}$$

$$\sin \theta = \frac{1}{\sqrt{14}} \text{ and } \cos \theta = \frac{\sqrt{13}}{\sqrt{14}}$$

$$\theta = \frac{1}{\sqrt{14}}$$

$$\tan x = \frac{1}{r}, \cot x = r$$

$$1 + \cot^2 x = \frac{1}{\sin^2 x} \rightarrow \frac{1}{10} = \sin^2 x \rightarrow \sin x = \frac{1}{\sqrt{10}} \times \frac{\sqrt{10}}{\sqrt{10}} = \frac{\sqrt{10}}{10}$$