

الف)  $\frac{27}{11} = \frac{x}{\pi} \rightarrow \frac{27\pi}{11} = \frac{3}{2}\pi$  ب)  $\frac{15}{11} = \frac{x}{\pi} \rightarrow \frac{15\pi}{11} = \frac{5}{4}\pi$  ①

ج)  $\frac{5\pi}{12} = \frac{x}{11} \rightarrow \frac{5\pi \times 11}{12 \times 11} = 75^\circ$  د)  $\frac{6\pi}{9} = \frac{x}{11} \rightarrow \frac{6\pi \times 11}{9 \times 11} = 1^\circ$  ②

$\frac{120a}{9} = \frac{x}{11} \rightarrow \frac{120 \times 11 \cdot a}{9 \times 11} = \frac{120}{9}a$   $\frac{a\pi}{1} = \frac{x}{11} \rightarrow \frac{11 \cdot a}{1} = \frac{11}{1}a$

$1 \cdot a + \frac{120}{9}a + \frac{11}{1}a = 11 \rightarrow \frac{1 \cdot a + 120a + 11a}{9} = 11$

$\frac{1 \cdot a + 120a + 11a}{9} = \frac{132}{9} \rightarrow a = 4$  ③

الف)  $\frac{1}{2} \times \frac{\sqrt{3}}{2} - \frac{\sqrt{3}}{2} \times \frac{1}{2} = 1 + 2 = 1$

$\tan \alpha = \frac{1}{\sqrt{3}} = \frac{1}{\sqrt{3}}$

$\tan \beta = \sqrt{3}$

ب)  $\frac{(\frac{1}{\sqrt{3}})^2 + 1 + (\sqrt{3})^2}{\sqrt{3} - \frac{1}{\sqrt{3}}} = \frac{\frac{1}{3} + 1 + 3}{\frac{3-1}{\sqrt{3}}} = \frac{\frac{13}{3}}{\frac{2}{\sqrt{3}}} = \frac{13\sqrt{3}}{6}$

④

$-\sin \alpha \times \cos \beta + \cos \alpha \times \sin \beta = \sin \theta$

$\leftarrow \cos, \sin$

$-\frac{1}{2} \times \frac{1}{2} + \frac{\sqrt{3}}{2} \times \frac{\sqrt{3}}{2} = -\frac{1}{4} + \frac{3}{4} = \frac{2}{4}$

$\tan \theta = ?$

$1 + \cot^2 = \frac{1}{\sin^2} \rightarrow \cot^2 = -1 + \frac{1}{\sin^2} \rightarrow \cot^2 = 1 \rightarrow \cot = 1, \tan = \frac{1}{\cot} \rightarrow \tan = 1$

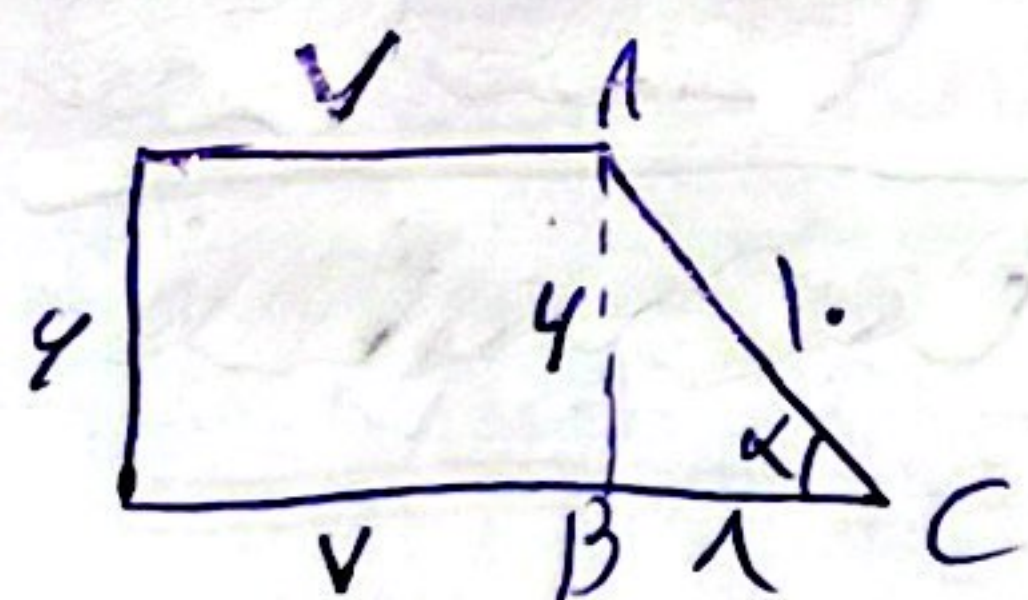
$\frac{2 \tan \alpha (1 - \tan^2 \beta)}{(1 - \cot^2 \beta)} = \frac{2 \times \frac{1}{\sqrt{3}} (1 - \frac{1}{3})}{(1 - \frac{1}{3})} = \frac{\frac{2}{\sqrt{3}} \times \frac{2}{3}}{\frac{2}{3}} = \frac{2}{\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}} = \frac{2\sqrt{3}}{3} = \sqrt{3}$  ⑤

$\sqrt{3} = \tan \theta \rightarrow \theta = 60^\circ \rightarrow \frac{60}{180} = \frac{x}{\pi} \rightarrow \frac{60\pi}{180} = \frac{\pi}{3}$

$$\tan \theta = \omega$$

$$\frac{\sin}{\cos} = \omega \rightarrow \sin = \omega \cos$$

$$\frac{3 \sin \theta - \cos \theta}{\sin \theta - \cos \theta} = \frac{1 \cos - \cos}{1 \cos - \cos} = 1 \quad (4)$$



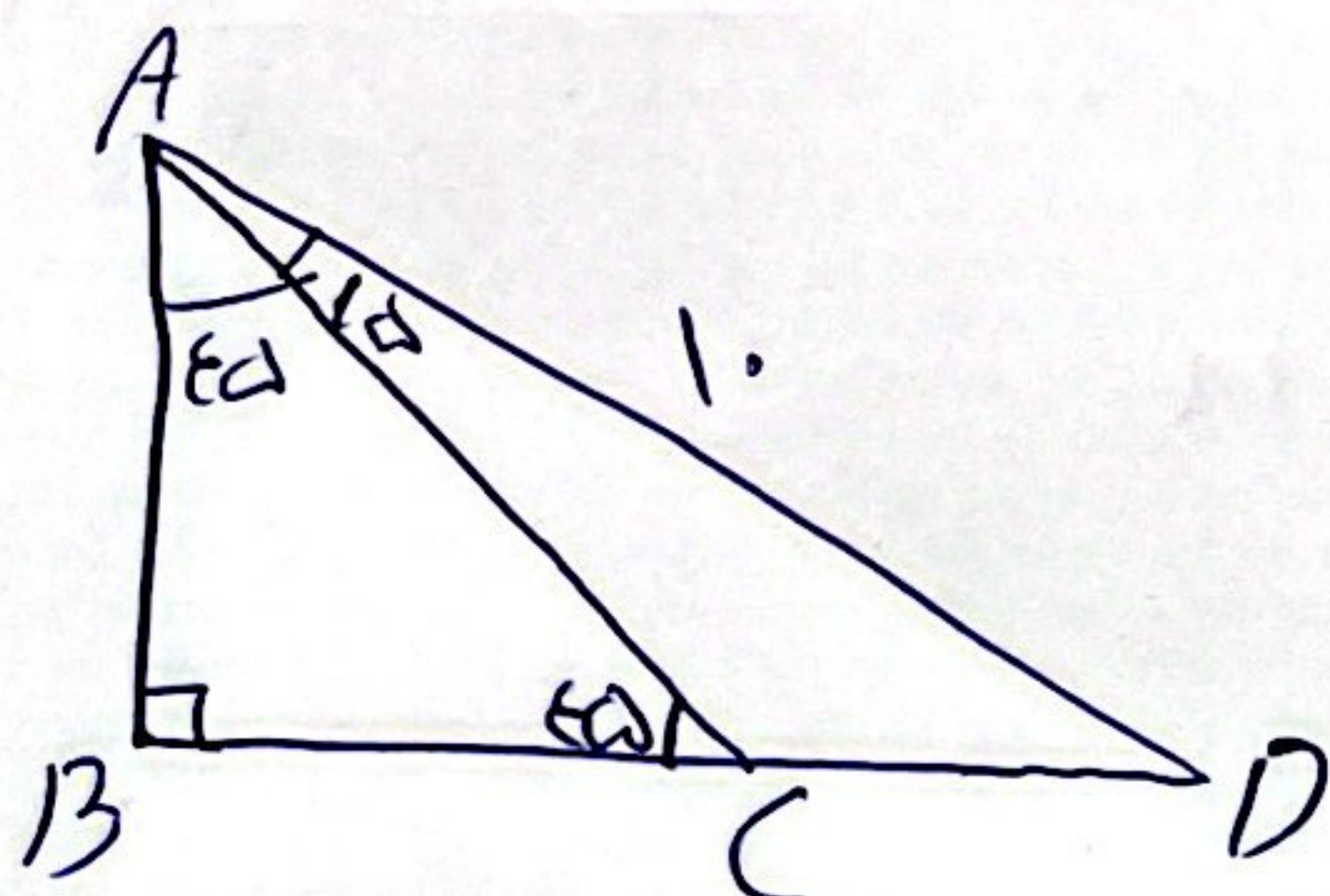
$$\sin \alpha = \frac{AB}{AC} = \frac{4}{5} = \frac{4}{5} \rightarrow AC = 5$$

$$BC = 5 - 4 = 1 \rightarrow 4 = 4 \rightarrow BC = 1$$

$$P = 1 + 4 + 1 + 4 + 4 = 1 + 1 + 4 + 1 = 7$$

$$P = ?$$

$$\sin \alpha = \frac{4}{5}$$



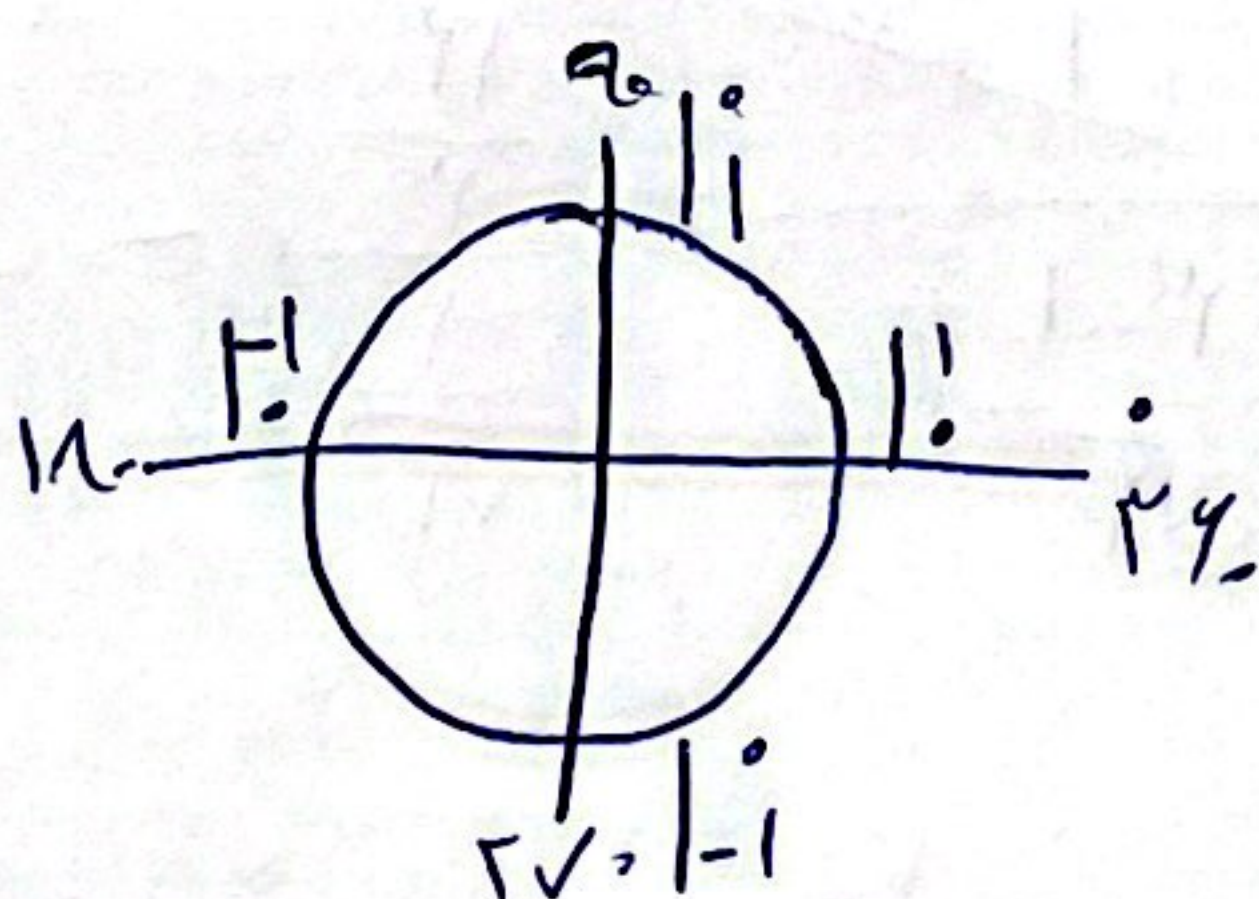
$$BD \Rightarrow \sin \alpha = \frac{BD}{AC} = \frac{\omega}{1} \rightarrow BD = \omega$$

$$AB = 1 - (\omega \sqrt{3}) = 1 - \omega \sqrt{3} \rightarrow AB = \omega$$

$$BC = \omega$$

$$CD = \omega \sqrt{3} - \omega$$

$$\rightarrow CD = \omega(\sqrt{3} - 1)$$



$$\frac{f}{g}$$

$$\tan = \frac{1}{3}, \sin, \cos(-)$$

$$\sin = ? \quad \tan = \frac{1}{\cot} \rightarrow \cot = 3$$

$$1 + \cot = \frac{1}{\sin} \rightarrow 1 + 3 = \frac{1}{\sin} \rightarrow \sin = \frac{1}{4} = \frac{\sqrt{10}}{4}$$

$$1.$$