۱۹

یکتا جباری

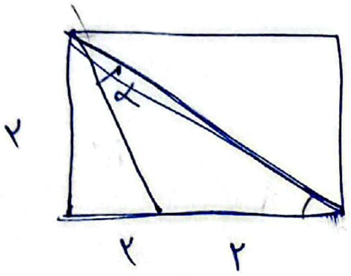
مقطع: یازدهم دفتر A

①

$S=\frac{1}{2}\times 6\times\sqrt{3}\times\sin\alpha=\frac{9}{2}\to\sin\alpha=\frac{9}{6\sqrt{3}}=\frac{\sqrt{3}}{2}$ ، $\alpha=120$ ، $\alpha=60$ = ②

ص

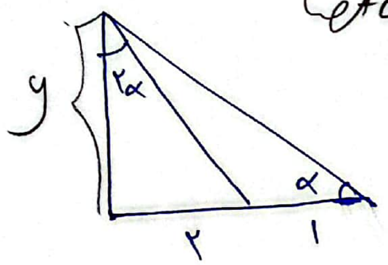
②



$\tan(\alpha+45)=\frac{\tan\alpha+1}{-\tan\alpha+1}=2\to\cot\alpha=3$

ص

③



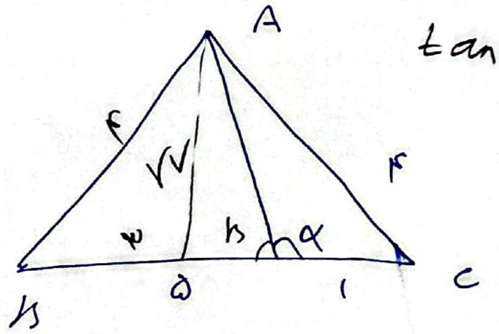
$\cot\alpha=\frac{3}{y}$

$\cot2\alpha=\frac{\cot^2\alpha-1}{2\cot\alpha}=\frac{(\frac{3}{y})^2-1}{2\times\frac{3}{y}}=\frac{y}{2}$

$9-y^2=3y^2\to y=\frac{3}{2}\to\cot\alpha=2$

ص

④



$\tan\alpha=-\tan B=-\frac{\sqrt{7}}{3}$

ص

⑤

$2\sin^2+\cos^2=\frac{4}{3}$ $\xrightarrow{+\cos^2}$ $2\sin^2 \ldots -\cos^2=\frac{4}{3}\to\cos^2=\frac{2}{3}$

$\tan^2=\frac{1}{2}$

$\sin^2=\frac{1}{3}$

ص

(6)

$$\frac{\sin^4 + 4\cos^2 + 4}{1+\cos^2} - \frac{\cos^4 + 4\sin^2 - 4}{1+\sin^2} \Rightarrow 2 - \sin^2\alpha - 2 + \cos^2\alpha = \cos 2\alpha$$

(7)

$\tan\alpha = \frac{4}{3}$ $\quad \pi < \alpha < \frac{3\pi}{2}$

$1+\tan^2 = \frac{1}{\cos^2}$

$\frac{9}{9}+\frac{16}{9} = \frac{25}{9}$ $\quad \cos = -\frac{3}{5} \rightarrow \sin = -\frac{4}{5}$

$\sin(\frac{9\pi}{2}+\alpha)\cos(\frac{7\pi}{2}-\alpha) - \tan(\alpha - \frac{3\pi}{2})$

$= \cos\alpha \times \sin\alpha + \cot\alpha$

$-\frac{12}{25} + \frac{3}{4} = \frac{48+75}{100} = 0.27$

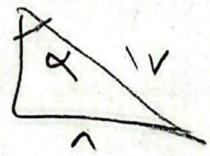
(8)

$3\cos 4x + \sqrt{2}\sin x - \sqrt{2}\cos x \Rightarrow \frac{\sqrt{3}}{2} - \frac{\sqrt{3}}{2} - 1 + 1.5 = 0.5$

$\sqrt{2}\sin(\frac{\pi}{3} - \frac{\pi}{4}) = \sin\frac{\pi}{3} - \cos\frac{\pi}{3} \rightarrow \sqrt{2}\cos\frac{\pi}{12} = \sqrt{2}\sin\frac{5\pi}{12} \rightarrow \boxed{\sin\frac{\pi}{6} + \cos\frac{\pi}{6}}$

(9)

$\tan(\frac{\alpha}{2}) = \frac{1}{4}$ $\quad \frac{\tan\alpha - \sin\alpha}{\sin\alpha - \cos\alpha} =$



$\tan\alpha = \tan(\frac{\alpha}{2} + \frac{\alpha}{2}) = \frac{\frac{1}{4}+\frac{1}{4}}{-\frac{1}{16}+1} = \frac{8}{15}$

[illegible] ۸ و ۱۵ و ۱۷

$$\frac{\frac{8}{15} - \frac{8}{17}}{\frac{8}{17} - \frac{15}{17}} = \frac{16}{-105}$$

(10)

$4\sin\alpha < 4\sin\alpha\cos\alpha$

→ $\sin\alpha < 0 \rightarrow \cos < 1 \rightarrow \sin\alpha < 0$ ✱

→ $\sin\alpha > 0 \rightarrow \cos\alpha > 1$ ✗

$\frac{\cos\alpha}{\sin^2\alpha} > 0 \rightarrow \cos\alpha > 0$)

$) \cap$ ✱ → [illegible]

۸) $\frac{۳}{۲} + \sqrt{۲}\underbrace{\left(\sin\frac{\pi}{۱۲} + \cos\frac{\pi}{۱۲}\right)}_{A}$

$A^{۲} = ۱ - \sin\frac{\pi}{۶} = ۱ - \frac{۱}{۲} = \frac{۱}{۲} \xrightarrow[A<0]{\sqrt{\ }} A = \frac{-۱}{\sqrt{۲}}$

$\frac{۳}{۲} + \sqrt{۲} \times \frac{-۱}{\sqrt{۲}} = \frac{۱}{۲}$