زینب تقی — A

page: (   )   Subject: Year   Month   Day

(1

$\tan\frac{11\pi}{4} + \sin\frac{10\pi}{3}\cos\frac{13\pi}{3}$

$\tan(2\pi + \frac{3\pi}{4}) + \sin(3\pi + \frac{\pi}{3})\cos(4\pi + \frac{\pi}{3})$

$(\tan\frac{3\pi}{4}) + -\sin(\frac{\pi}{3}) \cdot \cos(\frac{\pi}{3}) = 1 + \frac{1}{2} = \frac{3}{2}$

$\tan\frac{17\pi}{4}\ \sin\frac{11\pi}{3} + \cos\frac{10\pi}{3}$

$\tan(2\pi + \frac{5\pi}{4})\ \sin(2\pi + \frac{2\pi}{3})\cos(3\pi + \frac{\pi}{3})$

$\tan(\frac{5\pi}{4})\ \sin(\frac{2\pi}{3})\ \cos(\frac{\pi}{3})$

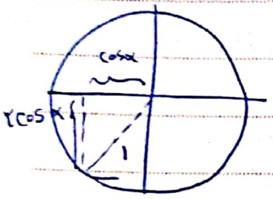
$\frac{\sqrt{3}}{3}\ \frac{\sqrt{3}}{2} \times \frac{1}{2} = \frac{3}{12} = \frac{1}{4}$

(2

$\cot x = 4 \Rightarrow \frac{\cos}{\sin} = 4 \Rightarrow \cos x = 4\sin x$

$\frac{3\cos x - \sin x}{\cos x + \sin x} = \frac{3(4\sin x) - \sin x}{4\sin x + \sin x} = \frac{11\sin x}{5\sin x}$

(3 $\sin\alpha = 2\cos\alpha$ ، ربع سوم ، $\cos\alpha = ?$

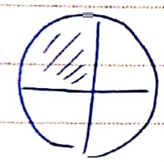


$\cos^2\alpha + (2\cos\alpha)^2 = 1$

$\cos^2\alpha + 4\cos^2\alpha = 1$

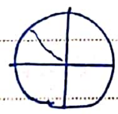
$5\cos^2\alpha = 1 \quad \cos^2\alpha = \frac{1}{5} \quad \cos = \frac{1}{\sqrt{5}} = \frac{\sqrt{5}}{5}$

(4 (الف) ← ربع دوم ← $\sin\alpha = \frac{\sqrt{2}}{10}$ ← $\cos(\frac{11\pi}{4} + \alpha)$

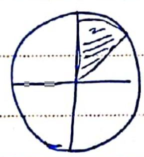


$(\frac{\sqrt{2}}{10})^2 + \cos^2 = 1 \Rightarrow \frac{2}{100} + \cos^2 = 1$

$\frac{98}{100} \Rightarrow -\cos \Rightarrow \sqrt{\frac{98}{100}}$

$(2\pi + \frac{3\pi}{4}) \Rightarrow$ 

ب) ربع اول $\tan\alpha = \frac{1}{7} \Leftarrow \cot\alpha = 7$ $\quad \sin(\frac{13\pi}{4} + \alpha)$

$(3\pi + \frac{\pi}{4} + \alpha) \Rightarrow$  $\quad \frac{\sqrt{2}}{2} < \sin\alpha < 1$

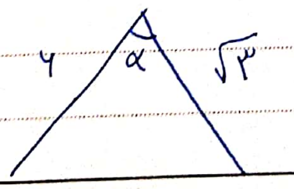
(5

$2\sin^2x + \cos^2x = \frac{4}{3}$

$2\sin^2x + 1 - \sin^2x = \frac{4}{3} \Rightarrow \sin^2x + 1 = \frac{4}{3} \quad \sin^2x = \frac{1}{3} \quad \cos^2 + \sin^2 = 1 \quad (\frac{2}{3}, \frac{1}{3})$

$\frac{\frac{1}{3}}{\frac{2}{3}} = \frac{1}{2} = \tan^2x$

(6



$\frac{1}{2} \times 6 \times \sqrt{3} \times \sin\alpha = 4.5$

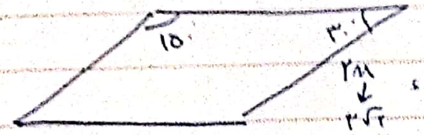
$3\sqrt{3}\sin\alpha = 4.5 \quad \sin\alpha = \frac{\sqrt{3}}{2}$

$30° < \sin\alpha < 33°$

Arman

Scanned with CamScanner

۷)



$۳x \times ۲x \times \sin ۳۰^\circ = ۵۴$

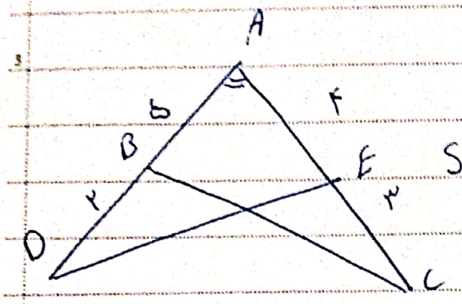
$۶x^۲ \times \frac{۱}{۲} = ۵۴$

$x^۲ = ۱۸ \quad x = \sqrt{۱۸}$

$x = ۳\sqrt{۲}$

$(۲ \times ۹\sqrt{۲}) + (۲ \times ۶\sqrt{۲}) = ۳۰\sqrt{۲}$ ($۱۸\sqrt{۲}$, $۱۲\sqrt{۲}$)

۸)



$S_{ADE} = \frac{۱}{۲} \times ۴ \times ۷ \times \sin A = \frac{۲۸}{۲} \sin A$

$S_{ABC} = \frac{۱}{۲} \times ۵ \times ۷ \times \sin A = \frac{۳۵}{۲} \sin A$

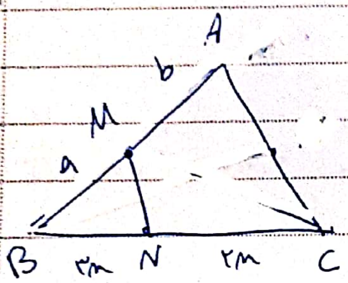
$\frac{۳۵}{۲} \sin A - \frac{۲۸}{۲} \sin A = ۱/۷۵$

$\frac{۷}{۲} \sin A = ۱/۷۵$

$\sin A = ۱/۲$

$\tan A = \frac{۱}{\sqrt{۳}}$

۹)



$۲BN = ۳NC$

$\frac{S_{ABC}}{S_{BMN}} = \frac{\frac{1}{2}(a+b)(5x)(\sin B)}{\frac{1}{2}(a)(۳x)\sin B} = 3$

$\frac{5ax + 5bx}{۳ax} = 3$

$5ax + 5bx = 9ax$

$5bx = 4ax$

$\frac{a}{b} = \frac{5}{4} = ۱/۲۵$

۱۰) الف) $\frac{|\sin\alpha|}{\cos\alpha} = -\frac{1}{\cot\alpha}$, $\frac{1}{\sqrt{\cos^2\alpha}} - \tan\alpha = \frac{1 + \sin\alpha}{|\cos\alpha|}$ انتهای کمان α در کدام ربع است:

$\frac{|\sin\alpha|}{\cos} = -\frac{\sin}{\cos} \Rightarrow (-)$

$\frac{1}{|\cos\alpha|} - \frac{1 + \sin\alpha}{|\cos\alpha|} = \tan\alpha$

$\frac{-\sin\alpha}{|\cos\alpha|} = \frac{\sin\alpha}{\cos} \Rightarrow \cos = (-)$

ناحیه ۳