$$\tan\frac{11\pi}{4}+\sin\frac{15\pi}{4}\cos\frac{13\pi}{4}$$

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

$$\tan\frac{17\pi}{6}\sin\frac{11\pi}{3}+\cos\frac{10\pi}{3}$$

$$-\frac{\sqrt{3}}{3}\times-\frac{\sqrt{3}}{2}+-\frac{1}{2}=+\frac{3}{6}+-\frac{1}{2}=0$$

$\cot\alpha=4$

$1+\cot^2\alpha=\frac{1}{\sin^2\alpha}$

$17=\frac{1}{\sin^2\alpha}\rightarrow\sin^2\alpha=\frac{1}{17}\rightarrow\sin\alpha=\pm\frac{1}{\sqrt{17}}$

$\sin^2\alpha+\cos^2\alpha=1\quad\frac{1}{17}+\frac{16}{17}=1$

$\cos\alpha=\pm\frac{4}{\sqrt{17}}$

$$\frac{\frac{12}{\sqrt{17}}-\frac{1}{\sqrt{17}}}{\frac{4+1}{\sqrt{17}}}=\frac{11}{5}\qquad\frac{\frac{-12+1}{\sqrt{17}}}{\frac{-4-4}{\sqrt{17}}}=\frac{11}{5}$$

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

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

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

$\cos\alpha=\pm\frac{1}{\sqrt{5}}\xrightarrow{\text{الربع سوم}}-\frac{1}{\sqrt{5}}$

$\cos\left(\frac{11\pi}{4}+\alpha\right)=\cos\left(\frac{3\pi}{4}+\alpha\right)$

$\cos\frac{3\pi}{4}\cos\alpha-\sin\frac{3\pi}{4}\sin\alpha$

$-\frac{\sqrt{2}}{2}\cos\alpha-\frac{\sqrt{2}}{2}\sin\alpha$

$\cos\alpha=\sqrt{1-\frac{4}{100}}=-\frac{7\sqrt{7}}{100}$

$-\frac{\sqrt{2}}{2}\times-\frac{7\sqrt{7}}{10}-\left(\frac{\sqrt{3}}{2}\times\frac{\sqrt{7}}{10}\right)=\frac{12}{20}=\frac{3}{5}$

$\cos\left(\frac{11\pi}{4}+\alpha\right)=\frac{3}{5}$

$\sin\left(\frac{13\pi}{4}+\alpha\right)=-\sin\left(\frac{5\pi}{4}+\alpha\right)$

$\sin(A+B)=\sin A\cos B+\cos A\sin B$

$\sin\frac{\pi}{4}\cos\alpha+\cos\frac{\pi}{4}\sin\alpha$

$-\frac{\sqrt{2}}{2}(\cos\alpha+\sin\alpha)=-\frac{\sqrt{2}}{2}\times\frac{8}{5\sqrt{2}}=\boxed{-\frac{4}{5}}$

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

$\cos^2\alpha=\frac{49}{50}$

$\sin^2\alpha=\frac{1}{50}$

$\sin^2\alpha+\underbrace{\sin^2\alpha+\cos^2\alpha}_{1}=\frac{5}{2}$

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

$\sin\alpha=\pm\frac{\sqrt{2}}{2}$

$\cos^2\alpha=\frac{1}{2}$

$\frac{\sin^2\alpha}{\cos^2\alpha}=\tan^2\alpha=\frac{1}{1}$

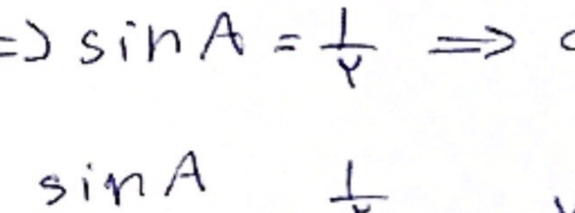
امیرحسین نجفیان

$\frac{1}{2}ab\sin\alpha$

$\frac{1}{2}\times 9\times\sqrt{2}\times\sin\alpha = 4.5$

$2\sqrt{2}\times\sin\alpha = 4.5$

$\frac{4.5}{2\sqrt{2}}\times\frac{\sqrt{2}}{\sqrt{2}} = \frac{4.5\sqrt{2}}{9\times 2} = \frac{\sqrt{2}}{2} = \sin\alpha$ $\quad \alpha = 60 \text{ or } 120$ $\quad \frac{120}{60} = 2$



$2x\times 2x\times\sin 120^\circ = 2x^2 = 24$

$x^2 = 18$

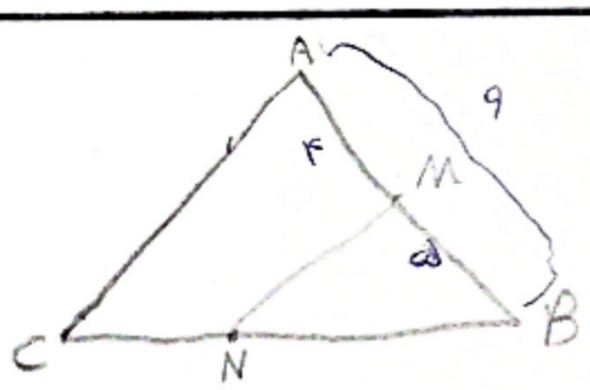
$x = \pm 3\sqrt{2}$

$4x + 6x = 10x \rightarrow 10\times 3\sqrt{2} = 30\sqrt{2}$

$\frac{7\times 5}{2}\times\sin A - \frac{7\times 4}{2}\times\sin A = 17.5\sin A - 14\sin A = 3.5\sin A = 1.75$

$\Rightarrow \sin A = \frac{1}{2} \Rightarrow \cos A = \frac{\sqrt{3}}{2}$

$\frac{\sin A}{\cos A} = \frac{\frac{1}{2}}{\frac{\sqrt{3}}{2}} = \frac{\sqrt{3}}{3} = \tan A$



$\frac{\frac{AB\times BC}{2}\times\sin B}{\frac{MB\times NB}{2}\times\sin B} = 2$

$\overline{AB}\times\overline{BC} = 2\overline{MB}\times\overline{NB}$

$2.5\,\overline{NC} = \overline{BC}$

$\overline{AB}\times 2.5\,\overline{NC} = 2\overline{MB}\times 1.5\,\overline{NC}$

$2.5\,\overline{AB} = 4.5\,\overline{MB}$ $\longrightarrow$

$\frac{BM}{AB} = \frac{2.5}{4.5} = \frac{5}{9}$

$\frac{BM}{AM} = \frac{5}{4}$

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

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

$\frac{|\sin\alpha|}{\cos\alpha} = -\tan\alpha \rightarrow \cos\alpha < 0$

$\frac{|\sin\alpha|}{\cos\alpha} = \frac{\sin\alpha}{|\cos\alpha|} \rightarrow \sin\alpha < 0$

} الربع سوم