۱- $\frac{\sin}{\cos} = \frac{\sin}{|\cos|} \Rightarrow |\cos| = \cos$ راه اول $\left.\begin{matrix}\cos>0\\ \sin>0\end{matrix}\right\} \Rightarrow$ (ربع اول)

۲- $\frac{-1}{2}(\frac{m-1}{2}) < 1 \Rightarrow -1 < m < 3$

۳- $(\sin+\cos)^2 = \frac{1}{2} \Rightarrow \sin+\cos = \sqrt{\frac{1}{2}}$

$\sin\cdot\cos = -\frac{1}{4}$

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

۴- $S = \frac{AD+BC}{2} \times AH = \frac{4+8}{2} \times 4 = 24$

۵- $-\cot(180-\alpha)\tan(180-\alpha)-\sin(90+\alpha)(-1)(\sin(180-\alpha)) = -\cos^2\alpha = k\cos^2\alpha$

$\Rightarrow k = -1$

۶- $\sqrt{2}(-\frac{\sqrt{2}}{2})(-\cos(270+\alpha)) = \sqrt{2}(\frac{\sqrt{2}}{2})(1)\cos(270+\alpha) \Rightarrow \frac{\cos(360-\alpha)}{\cos(270+\alpha)} = \frac{\cos\alpha}{\sin\alpha}$

۷- $\frac{\sin^2(\pi+\alpha)}{14\sin^2(\frac{\pi}{2}+\alpha)} \Rightarrow \frac{\frac{1}{4}}{14\times(2-\sqrt{3})} = \frac{(2+\sqrt{3})^2}{14(4-3)} = \frac{7+4\sqrt{3}}{14}$

۸- $\sin\alpha = -\frac{3}{5}$ $\tan\frac{\alpha}{2} = \frac{\sin\alpha}{1+\cos\alpha} = \frac{-\frac{3}{5}}{1-\frac{4}{5}} = -3 \Rightarrow \cos\alpha = \frac{4}{5}$

۹- $\frac{\sin}{1-\cos} = \frac{1+\cos}{\sin} = \cot\frac{A}{2} \Rightarrow 2\cot+\frac{A}{2} = 1C\cot+\frac{A}{2} \Rightarrow k = 1$

۱۰- $1-\sin^2 = \frac{96}{100} \Rightarrow \cos = \pm\frac{\sqrt{24}}{10} \Rightarrow \cos(\frac{3\pi}{2})\cos\alpha - \sin(\frac{3\pi}{2})\sin\alpha$

$= \frac{24}{50} - \frac{25}{50} = \frac{-1}{50} = -\frac{1}{50}$