

$$\begin{aligned} \tan \alpha = \omega &\Rightarrow \frac{\sin \alpha}{\cos \alpha} = \omega \Rightarrow \cos \alpha = k \Rightarrow \sin \alpha = \omega k \\ &\Rightarrow \sin^2 \alpha + \cos^2 \alpha = 1 \Rightarrow 1 + k^2 = 1 \Rightarrow k = \pm \frac{1}{\sqrt{1+\omega^2}} \\ &\Rightarrow \sin \alpha = \pm \frac{\omega}{\sqrt{1+\omega^2}} = \cos \alpha = \pm \frac{1}{\sqrt{1+\omega^2}} \Rightarrow \\ &\frac{1(\pm \frac{\omega}{\sqrt{1+\omega^2}}) - (\pm \frac{1}{\sqrt{1+\omega^2}})}{(\pm \frac{\omega}{\sqrt{1+\omega^2}}) - \omega(\pm \frac{1}{\sqrt{1+\omega^2}})} = \frac{1}{\omega} \checkmark \end{aligned}$$

$$\begin{aligned} \frac{6}{64} = 1.0 &\Rightarrow \cos \alpha = \sqrt{1 - \sin^2 \alpha} = \sqrt{0.96} = 0.98 \\ &\Rightarrow 1.0 \times 0.98 = 1 \Rightarrow v + 1 = 1 \omega \Rightarrow v + 1 \neq 1 \omega \end{aligned}$$

$$\begin{aligned} \cancel{BC = \frac{1}{2}} \quad BC = \frac{1}{2} \quad (P = \frac{1}{2} \Rightarrow) \\ \frac{y}{1.0} = \frac{1}{2} \Rightarrow y = 0.5 \Rightarrow \cos 30^\circ = \frac{x+y}{1.0} = \frac{\sqrt{3}}{2} \Rightarrow \\ \frac{x+0.5}{1.0} = \frac{\sqrt{3}}{2} \Rightarrow x+0.5 = 0.866 \Rightarrow x = 0.366 \quad (\sqrt{3} = 1.732) \checkmark \end{aligned}$$

الف) در ناحیه دوم قرار دارد
ب) در ناحیه یک این اتفاق می افتد

$$\begin{aligned} \tan \alpha = \frac{\sin \alpha}{\cos \alpha} \Rightarrow \left. \begin{array}{l} \text{ضلع مقابل} = 1 \\ \text{ضلع مجاور} = 2 \end{array} \right\} \Rightarrow \text{وتر} = \sqrt{1^2 + 2^2} = \sqrt{5} \\ \sin \alpha = \frac{1}{\sqrt{5}} \Rightarrow \frac{1}{\sqrt{5}} \checkmark \end{aligned}$$

معمولاً در ناحیه سه است پس منفی می شود