

Exercícios Trigonometria

Lucas Barbosa Brancalhão

$$\begin{aligned}1 - \operatorname{sen} \alpha &= \frac{3}{5} & \operatorname{sen}^2 \alpha + \cos^2 \alpha &= 1 \\ \cos^2 \alpha &= 1 - \operatorname{sen}^2 \alpha = \cos \alpha = \sqrt{1 - \operatorname{sen}^2 \alpha} \\ \cos \alpha &= \sqrt{1 - \left(\frac{3}{5}\right)^2} = \sqrt{1 - \frac{9}{25}} = \sqrt{\frac{25 - 9}{25}} = \\ \sqrt{\frac{16}{25}} &\rightarrow \cos \alpha = \frac{4}{5} \\ \operatorname{tg} \alpha &= \frac{\operatorname{sen} \alpha}{\cos \alpha} = \frac{3/5}{4/5} = \frac{3 \cdot 5}{5 \cdot 4} \quad \operatorname{tg} \alpha = \frac{3}{4}\end{aligned}$$

$$\begin{aligned}\operatorname{cotg} \alpha &= \frac{1}{\operatorname{tg} \alpha} = \frac{1}{3/4} = \frac{4}{3} \\ \sec \alpha &= \frac{1}{\cos \alpha} = \frac{1}{4/5} = \frac{5}{4} = \sec \alpha = \frac{5}{4} \\ \operatorname{cosec} \alpha &= \frac{1}{\operatorname{sen} \alpha} = \frac{1}{3/5} = \frac{5}{3} = \operatorname{cosec} \alpha = \frac{5}{3}\end{aligned}$$

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

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

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

$$\rightarrow \sin \alpha = \sqrt{1 - \left(\frac{\sqrt{2}}{2}\right)^2} = \sqrt{1 - \frac{2}{4}} = \sqrt{\frac{4-2}{4}}$$

$$\sqrt{\frac{2}{4}} = \frac{\sqrt{2}}{\sqrt{4}} = \frac{\sqrt{2}}{2}$$

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

$$\operatorname{Tg} \alpha = \frac{\frac{\sqrt{2}}{2}}{\frac{\sqrt{2}}{2}} = \frac{\sqrt{2}}{2} \cdot \frac{2}{\sqrt{2}} = \frac{\sqrt{2}^2}{\sqrt{2}} = \frac{2}{2} = 1$$

$$\operatorname{Cotg} \alpha = \frac{1}{\operatorname{Tg} \alpha} = \frac{1}{1} = 1$$

$$\operatorname{Sec} \alpha = \frac{1}{\cos \alpha} = \frac{1}{\frac{\sqrt{2}}{2}} = \frac{1}{\frac{\sqrt{2}}{2}} = \frac{1}{1} \cdot \frac{2}{\sqrt{2}} = \frac{2}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{2\sqrt{2}}{2} = \sqrt{2}$$

$$\operatorname{Sec} \alpha = \sqrt{2}$$

$$\operatorname{Cosec} = \frac{1}{\sin \alpha} = \frac{1}{\frac{\sqrt{2}}{2}} = \frac{1}{\frac{\sqrt{2}}{2}} = \frac{1}{1} \cdot \frac{2}{\sqrt{2}} = \frac{2}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{2\sqrt{2}}{2} = \sqrt{2}$$

$$\operatorname{Cosec} = \sqrt{2}$$