

Let θ be an angle in standard position and $P(x,y)$ lie on the terminal side of θ a distance of r from the origin such that $r = \sqrt{x^2 + y^2}$, then...

$$\sin \theta = \frac{y}{r}$$

$$\cos \theta = \frac{x}{r}$$

$$\tan \theta = \frac{y}{x}$$

$$\csc \theta = \frac{r}{y}$$

$$\sec \theta = \frac{r}{x}$$

$$\cot \theta = \frac{x}{y}$$

Restricted Domains

$\sin \theta$ and $\csc \theta$

$$-\frac{\pi}{2} \leq \theta \leq \frac{\pi}{2}$$

$$\theta \neq 0$$

$\cos \theta$ and $\sec \theta$

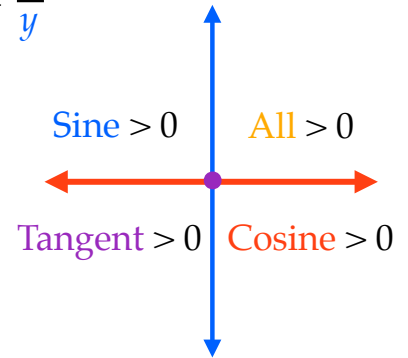
$$0 \leq \theta \leq \pi$$

$$\theta \neq \frac{\pi}{2}$$

$\tan \theta$ and $\cot \theta$

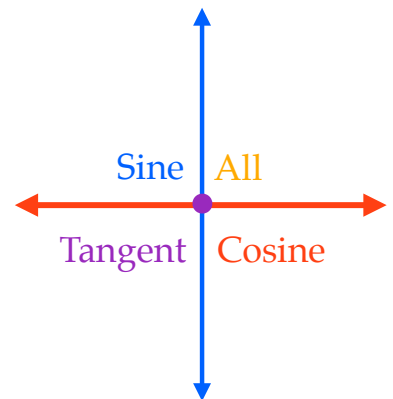
$$-\frac{\pi}{2} < \theta < \frac{\pi}{2}$$

$$0 < \theta < \pi$$



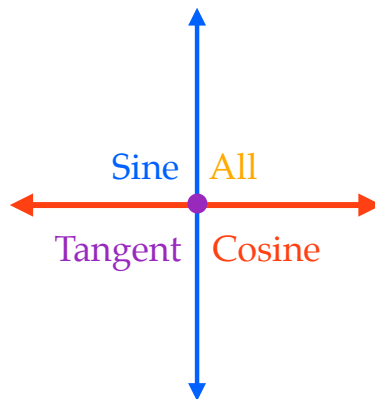
Evaluate the following expressions

$$\sec(\tan^{-1} \frac{1}{2})$$



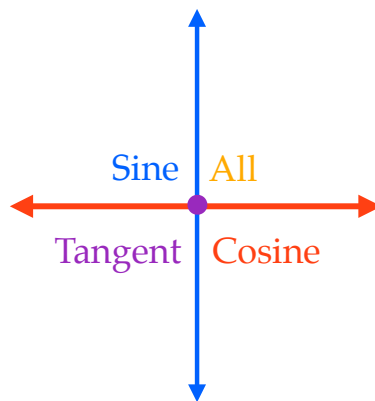
Evaluate the following expressions

$$\cot(\sin^{-1} \frac{1}{3})$$



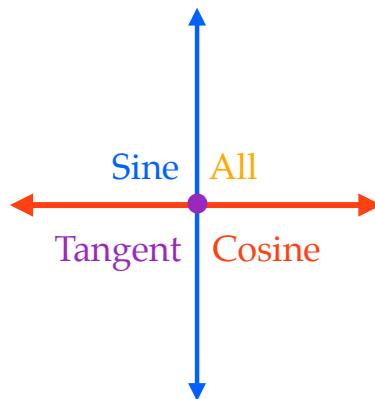
Evaluate the following expressions

$$\csc(\cos^{-1} \frac{\sqrt{3}}{2})$$



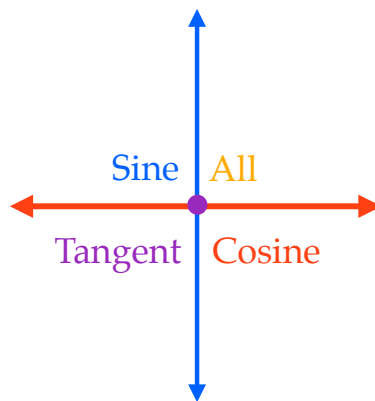
Evaluate the following expressions

$$\csc(\tan^{-1} \frac{1}{2})$$



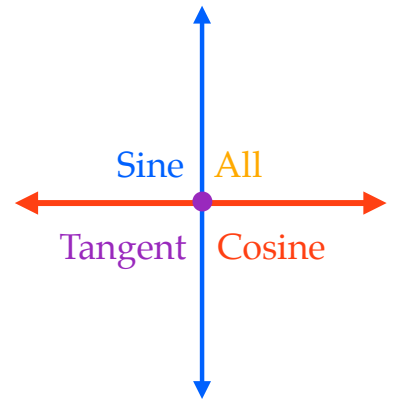
Evaluate the following expressions

$$\sec(\sin^{-1} \frac{1}{3})$$



Evaluate the following expressions

$$\cot(\cos^{-1} - \frac{\sqrt{3}}{2})$$



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