

[19] $\sin^2 \theta + \cos^2 \theta = 1 \Rightarrow \sin \theta = \pm \sqrt{1 - \cos^2 \theta}$ and since θ is in Quadrant IV, $\sin \theta = -\sqrt{1 - \cos^2 \theta}$.

$$\cos \theta = \frac{1}{\sec \theta} = \frac{1}{3}$$

$$\sin \theta = -\sqrt{1 - \cos^2 \theta} = -\sqrt{1 - \left(\frac{1}{3}\right)^2} = -\sqrt{1 - \frac{1}{9}} = -\sqrt{\frac{8}{9}} = -\frac{\sqrt{8}}{3}$$

$$\tan \theta = \frac{\sin \theta}{\cos \theta} = \frac{-\frac{\sqrt{8}}{3}}{\frac{1}{3}} = -\sqrt{8}$$

$$\csc \theta = \frac{1}{\sin \theta} = \frac{1}{-\frac{\sqrt{8}}{3}} = -\frac{3}{\sqrt{8}}$$

$$\cot \theta = \frac{1}{\tan \theta} = \frac{1}{-\sqrt{8}} = -\frac{1}{\sqrt{8}}$$