

Trigonometric identities-Review

Simplify each expression

1. $\sec\theta - \sin\theta \cdot \tan\theta$	2. $\frac{\operatorname{cosec}^2\theta - 1}{\operatorname{cosec}\theta}$
3. $\cos\theta \cdot \cot\theta \cdot \tan\theta \cdot \sec\theta$	4. $(1 + \cos\theta)(\operatorname{cosec}\theta - \cot\theta)$

2. Find $\sec\theta$ if $\sin\theta = \frac{1}{3}$, and $\frac{\pi}{2} < \theta < \pi$

3. Find $\cot\theta$ if $\operatorname{cosec}\theta = \frac{11}{5}$ and $\frac{\pi}{2} < \theta < \pi$

Prove the trigonometric identities

$$1. \frac{\operatorname{cosec}\theta}{\sin\theta} - \frac{\cot\theta}{\tan\theta} = 1$$

$$2. \tan\theta + \cot\theta = \sec\theta\operatorname{cosec}\theta$$

$$3. \tan\theta + \sin\theta = \frac{1+\cos\theta}{\cot\theta}$$

$$4. \frac{\cot\theta - \tan\theta}{\sin\theta\cos\theta} = \operatorname{cosec}^2\theta - \sec^2\theta$$