

Handout for LessonPlan 17

Identities So Far

$$\tan(\theta) = \frac{\sin(\theta)}{\cos(\theta)} \quad \cot(\theta) = \frac{\cos(\theta)}{\sin(\theta)} \quad \sec(\theta) = \frac{1}{\cos(\theta)} \quad \csc(\theta) = \frac{1}{\sin(\theta)}$$

$$\sin(-\theta) = -\sin(\theta) \quad \cos(-\theta) = \cos(\theta) \quad \tan(-\theta) = -\tan(\theta)$$

$$\csc(-\theta) = -\csc(\theta) \quad \sec(-\theta) = \sec(\theta) \quad \text{ctn}(-\theta) = -\text{ctn}(\theta)$$

$$\sin(\theta) = \cos(90^\circ - \theta) \quad \cos(\theta) = \sin(90^\circ - \theta)$$

$$\csc(\theta) = \sec(90^\circ - \theta) \quad \sec(\theta) = \csc(90^\circ - \theta)$$

$$\tan(\theta) = \text{ctn}(90^\circ - \theta) \quad \text{ctn}(\theta) = \tan(90^\circ - \theta)$$

$$\sin^2 \theta + \cos^2 \theta = 1 \quad \sin^2 \theta = 1 - \cos^2 \theta \quad \cos^2 \theta = 1 - \sin^2 \theta$$

$$\sin \theta = \pm \sqrt{1 - \cos^2 \theta} \quad \cos \theta = \pm \sqrt{1 - \sin^2 \theta}$$

$$\tan^2 \theta + 1 = \sec^2 \theta \quad \text{ctn}^2 \theta + 1 = \csc^2 \theta$$

Simplify:

$$\sec^2(\alpha)[1 - \sin^2(\alpha)]$$

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

$$[\sec(\theta) + 1][\sec(\theta) - 1]$$

Solve the equation:

$$\frac{\cos(\theta)}{1 - \sin^2(\theta)} + 2 = -1$$

$$1 - \sin^2(\theta)\cot^2(\theta) = 0.8$$