

7.2 7.3 Extra Practice Pg. A38

Lesson 7-2 (Pages 431–436)

Verify that each equation is an identity.

$$1. \csc^2 \theta = \cot^2 \theta + \sin \theta \csc \theta$$

$$3. \sin^2 x + \cos^2 x = \sec^2 x - \tan^2 x$$

$$2. \frac{\sec \theta - \csc \theta}{\csc \theta \sec \theta} = \sin \theta - \cos \theta$$

$$4. \sec A - \cos A = \tan A \sin A$$

Lesson 7-3 (Pages 437–445)

Use sum or difference identities to find the exact value of each trigonometric function.

$$1. \cos 75^\circ \quad \frac{\sqrt{6} - \sqrt{2}}{4}$$

$$2. \sin 105^\circ \quad \frac{\sqrt{6} + \sqrt{2}}{4}$$

$$3. \tan \frac{\pi}{12} \quad 2 - \sqrt{3}$$

$$4. \tan \frac{7\pi}{12} \quad -2 - \sqrt{3}$$

$$5. \sec \frac{29\pi}{12} \quad \sqrt{6} + \sqrt{2}$$

$$6. \cot 375^\circ \quad 2 + \sqrt{3}$$

Find each exact value if $0 < x < \frac{\pi}{2}$ and $0 < y < \frac{\pi}{2}$.

$$7. \sin (x + y) \text{ if } \cos x = \frac{2}{5} \text{ and } \sin y = \frac{3}{4} \quad \frac{6 + 7\sqrt{3}}{20}$$

$$8. \cos (x - y) \text{ if } \cos x = \frac{5}{12} \text{ and } \cos y = \frac{11}{12} \quad \frac{55 + \sqrt{2737}}{144}$$

$$9. \tan (x + y) \text{ if } \cot x = \frac{4}{3} \text{ and } \sec y = \frac{5}{4} \quad \frac{24}{7}$$

$$10. \sec (x - y) \text{ if } \tan x = \frac{7}{6} \text{ and } \csc y = \frac{8}{5} \quad \frac{48\sqrt{3315} - 280\sqrt{85}}{179}$$