

14-1 Skills Practice

Trigonometric Identities

Find the exact value of each expression if $0^\circ < \theta < 90^\circ$.

1. If $\tan \theta = 1$, find $\sec \theta$.

$$\sqrt{2}$$

3. If $\sec \theta = 2$, find $\cos \theta$.

$$\frac{1}{2}$$

2. If $\tan \theta = \frac{1}{2}$, find $\cos \theta$.

$$\frac{2\sqrt{5}}{5}$$

4. If $\cos \theta = \frac{8}{17}$, find $\csc \theta$.

$$\frac{17}{15}$$

Find the exact value of each expression if $90^\circ < \theta < 180^\circ$.

5. If $\cos \theta = -\frac{4}{5}$, find $\sin \theta$.

$$\frac{3}{5}$$

6. If $\cot \theta = -\frac{3}{2}$, find $\cos \theta$.

$$-\frac{3\sqrt{13}}{13}$$

Find the exact value of each expression if $180^\circ < \theta < 270^\circ$.

7. If $\tan \theta = 1$, find $\cos \theta$.

$$-\frac{\sqrt{2}}{2}$$

9. If $\csc \theta = -2$, find $\cos \theta$.

$$-\frac{\sqrt{3}}{2}$$

11. If $\csc \theta = -2$, find $\cot \theta$.

$$\sqrt{3}$$

8. If $\sin \theta = -\frac{\sqrt{2}}{2}$, find $\tan \theta$.

$$1$$

10. If $\cos \theta = -\frac{2\sqrt{5}}{5}$, find $\tan \theta$.

$$\frac{1}{2}$$

12. If $\sin \theta = -\frac{5}{13}$, find $\tan \theta$.

$$\frac{5}{12}$$

Simplify each expression.

13. $\sin \theta \sec \theta \tan \theta$

14. $\csc \theta \sin \theta$ **1**

15. $\cot \theta \sec \theta$ **csc θ**

16. $\frac{\cos \theta}{\sec \theta}$ **cos² θ**

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

18. $\csc \theta \tan \theta - \tan \theta \sin \theta$ **cos θ**

19. $\frac{1 - \sin^2 \theta}{\sin \theta + 1}$ **1 - sin θ**

20. $\csc \theta + \cot \theta$ $\frac{1 + \cos \theta}{\sin \theta}$

21. $\frac{\sin^2 \theta + \cos^2 \theta}{1 - \cos^2 \theta}$ **csc² θ**

22. $1 + \frac{\tan^2 \theta}{1 + \sec \theta}$ **sec θ**