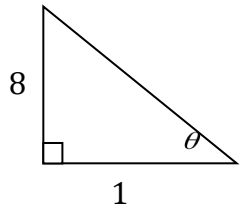
Precalculus **Name** _____

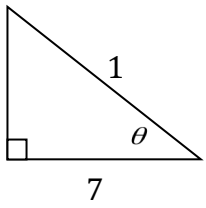
4.3-4.4 Review

Find the exact values of the six trigonometric functions of the angle theta shown in the figure.

1.



2.



3. List the three Pythagorean Identities.

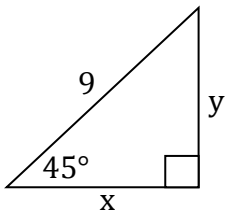
Sketch a right triangle corresponding to the trigonometric function of the acute angle theta. Find the remaining five trigonometric functions of theta.

4. $\sin\theta = \frac{5}{6}$

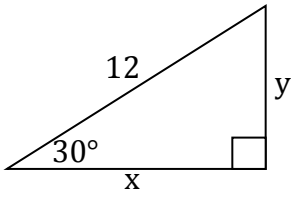
5. $\tan\theta = 3$

Find the exact values of the missing variables – *x*, *y*, or *r*.

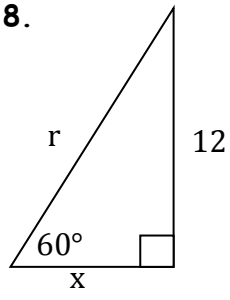
6.



7.



8.



Draw a picture to represent the situation and then solve.

9. A 16-foot ladder is leading against a building. If the ladder forms a 38° angle with the ground, determine how high the ladder meets the building.	**10.** Michael is looking at the top of a mountain. It is 2,050 feet high. If Mike is 6 feet tall (eye level) and he is looking up at a 10° angle, how far is he from the mountain?

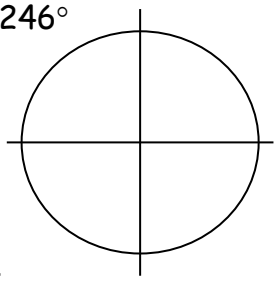
Determine the value(s) of theta in degrees ($0^\circ \le \theta < 3600^\circ$) and radians ($0 \le \theta < 2\pi$).

11. $\sin(\theta) = \frac{\sqrt{3}}{2}$	**12.** $\tan(\theta) = 1$	**13.** $\csc(\theta) = 2$	**14.** $\cot(\theta)$ *is undefined*

Determine the reference angle θ'. ***Using the blank coordinate planes is optional.***

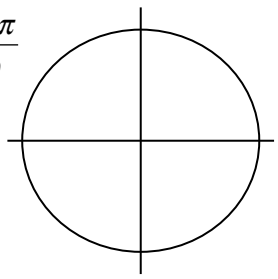
15. $\theta = -246^\circ$

$\theta' =$ _____



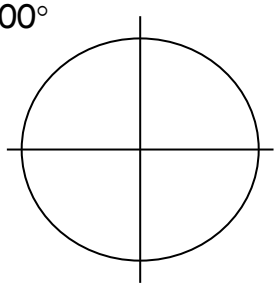
16. $\theta = \frac{13\pi}{9}$

$\theta' =$ _____



17. $\theta = 500^\circ$

$\theta' =$ _____



The point given is on the terminal side of an angle in standard position. Determine the exact values of the six trigonometric functions on the angle.

18. (3,−9)	**19.** (−5,12)

20. **Given** $\sec\theta = -2$ **and** $0 \le \theta \le \pi$, **find the values of the six trigonometric functions of** θ.

21. **Given** $\cot\theta$ **is undefined and** $\frac{\pi}{2} \le \theta \le \frac{3\pi}{2}$, **find the values of the six trigonometric functions of** θ.

22. **Given** $\sin\theta = \frac{3}{5}$ **and** $\cot\theta < 0$, **determine** $\cos\theta$ **and** $\tan\theta$.

23. **Given** $\cos\theta = -\frac{3\sqrt{10}}{10}$ **and** $\tan\theta > 0$, **determine** $\csc\theta$ **and** $\tan\theta$.

Evaluate the following trigonometric functions.

24. $\cos(135^\circ)$

25. $\sec\frac{\pi}{2}$

26. $\sin(-390^\circ)$

Evaluate the following trigonometric functions.

27. $\tan 300^\circ$	**28.** $\cot\left(\frac{15\pi}{4}\right)$	**29.** $\csc\frac{3\pi}{2}$
30. $\cos 9\pi$	**31.** $\sin(-720^\circ)$	**32.** $\sec\frac{5\pi}{3}$

Use trigonometric identities to transform one side of the equation into the other $(0 < \theta < 2\pi)$.

33. $\tan\theta\cos\theta = \sin\theta$	**34.** $(1+\cos\theta)(1-\cos\theta) = \sin^2\theta$
35. $\frac{\cot\theta\tan\theta}{\sin\theta} = \csc\theta$	**36.** $\frac{1+\sec^2 x}{1+\tan^2 x} = 1+\cos^2 x$