

Math153.02

Date:

Name:

Score:

Exam 3 (Sections 6.1 - 6.3)

1. Determine the quadrant in which q lies.

a. $q = -336^\circ$ _____

b. $\sin q > 0$ and $\cos q > 0$ _____

2. Which is smaller a degree or a radian? Explain.

3. Given $q = \frac{6p}{11}$:

a. Sketch the angle q in standard position. _____

b. Determine a positive coterminal angle for the angle q in radians. _____

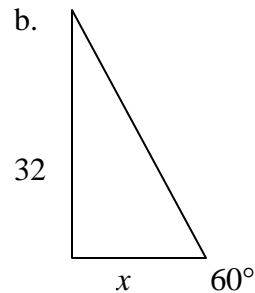
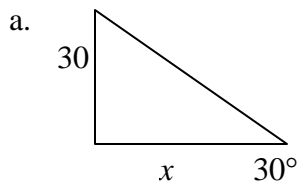
c. Determine a negative coterminal angle for the angle q in degrees. _____

d. Determine the reference angle for the angle to q in degrees. _____

4. **Find the distance between the cities.** Assume the earth is a sphere of radius 4000 miles and that the cities are on the same longitude.

City	Latitude
Miami, Florida	$25^\circ 46' 37'' N$
Erie, Pennsylvania	$42^\circ 7' 15'' N$

5. Solve for x .



6. Use trigonometric identities to transform the left side of the equation into the right side.

$$\frac{\sin q}{\cos q} + \frac{\cos q}{\sin q} = \csc q \sec q$$

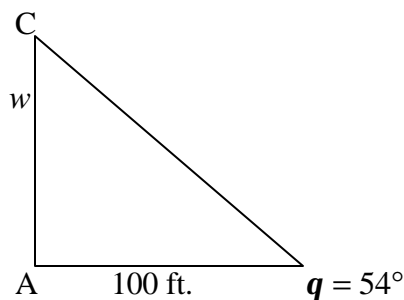
7. Use your calculator to evaluate each function. Round your answer to four decimal places. (Be sure the calculator is in the correct angle mode.)

a. $\cot(66.5^\circ)$ _____

b. $\sin(16.35^\circ)$ _____

c. $\cos(.9848)$ _____

8. **Width of a river:** A biologist wants to know the width w of a river so that she can properly set instruments for studying the pollutants in the water. From point A, to biologist walls downstream 100 feet and sights to point C. From this sighting, it is determined that $q = 54^\circ$. How wide is the river?



9. Find the values of the six trigonometric functions of q , where $\csc q = 4$ and $\cot q < 0$.

10. Complete the following table.

<i>Function</i>	<i>Domain</i>	<i>Range</i>	<i>Even/Odd</i>	<i>Period</i>	<i>Zeros</i>
Sine					
Cosine					
Tangent					
Cosecant					
Secant					
Cotangent					

11. Using the table you completed in number 10, identify and describe any inherent patterns in the trigonometric functions. What can you conclude?

12. Find the period and amplitude.

a. $y = -\cos \frac{2x}{3}$

b. $y = \frac{1}{3} \sin 8x$