



Name:

Date:

Period:

Unit 7 Practice Test

Learning Targets: 7A, 7B, 7C, and 7D

Complete the problems below, show your work, and write your answer in the blank provided.

Target 7A: I can accurately use radian measures to define angles and find arc lengths.

1. Convert the given angle into the given measure.

a. $45^{\circ}36'10''$ to degrees

b. $\frac{7\pi}{15}$ radians to degrees

c. 235° to radians

2. Find the arc length of a 35° arc that has a radius of 3 cm

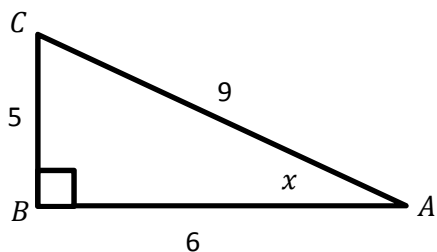
3. A 10 cm arc has a measure of $\frac{\pi}{6}$ radians. Find the radius of the circle.

4. A point on a 7 inch radius wheel travels 5 inches . Find the measure of the arc traveled in radians.

5. Find one positive and one negative angle coterminal with an angle of 125° .

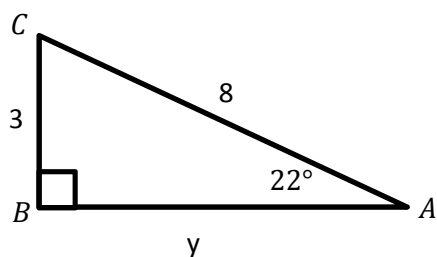
Target 7B: In can solve problems by applying the 6 trigonometric functions to the sides of a right triangle.

6. Find the six trigonometric ratios for the triangle



7. Find the value of x in the triangle in the previous problem.

8. Find the value of y in the triangle below.



9. Given that $\csc \theta = \frac{7}{2}$, find the value of the other five trigonometric ratios.

Target 7C: I can find the values of Sine and Cosine on the 16 point Unit Circle and apply them to solve problems involving all 6 trigonometric functions.

10. Find the exact values of the following trigonometric functions using the Unit Circle. Be sure to show work when necessary.

a. $\sin\left(\frac{5\pi}{4}\right)$

b. $\cos\left(\frac{3\pi}{6}\right)$

c. $\tan\left(\frac{3\pi}{4}\right)$

d. $\cos\left(-\frac{\pi}{6}\right)$

e. $\tan\left(-\frac{2\pi}{3}\right)$

f. $\sec\left(\frac{13\pi}{6}\right)$

g. $\cot\left(\frac{\pi}{3}\right)$

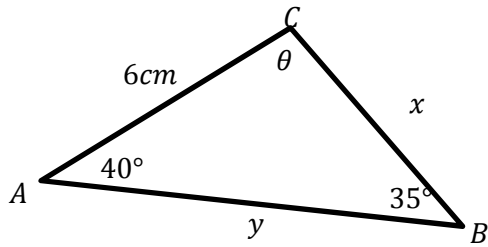
h. $\sec\left(-\frac{5\pi}{3}\right)$

i. $\cos\left(\frac{4\pi}{3}\right)$

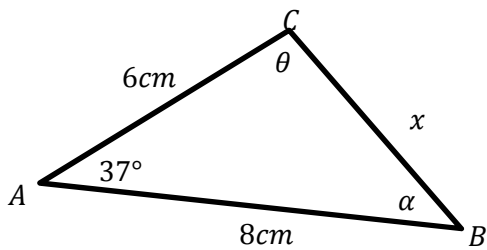
j. $\sin\left(\frac{15\pi}{4}\right)$

Target 7D: I can solve problems using the Law of Sines and the Law of Cosines.

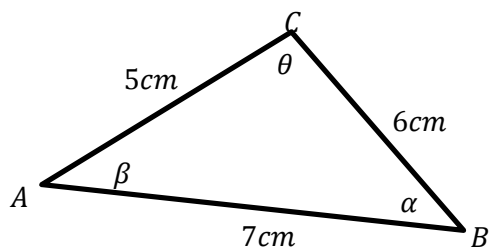
11. Solve the triangle.



12. Solve the triangle



13. Solve the triangle



14. State if $\triangle ABC$ can be solved if $\angle A = 43.1^\circ$, $a = 186.2$, $b = 248.6$. If it can be solved, state if 1, or 2 triangles are possible and how you know.

Applications

15. A truck's wheels have a diameter of 36 inches. If the wheels are rotating at 500 rpm, find the speed of the car in miles per hour.

16. Two observers are standing 950 feet apart and looking up at an hot air balloon that is directly between them as shown in the drawing below. One looks up at 75° and the other looks up at 70° .

a. Find out how far the balloon is from each observer.

b. Find the height of the balloon.

