Name: _____

7.REV.2 ~ RIGHT TRIANGLE TRIGONOMETRY

Past due on: _____ Period: _____

Use complement angle relationships to solve each problem.

1. If $\cos 35° = \sin x$, find x.

2. If $\sin 8° = \cos x$, find x.

3. If $\sin 60° = \cos(x + 10)°$, what is x?

4. If $\sin(2x + 7)° = \cos(4x - 7)°$, what is x?

5. Find the sine, cosine, tangent, cosecant, secant, and cotangent ratios of the acute angle θ expressed in simplest form.


$\sin \theta =$

$\cos \theta =$

$\tan \theta =$

$\csc \theta =$

$\sec \theta =$

$\cot \theta =$
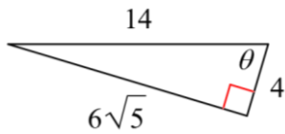
6. Sketch the right triangle described by the given trig ratio. Use the Pythagorean Theorem to find the third side. Find the values of the remaining trigonometric ratios expressed in simplest form.
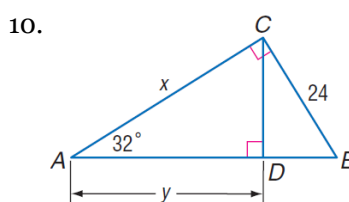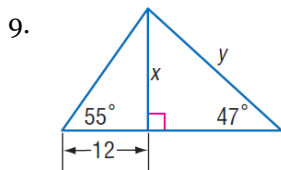
$\csc \theta = \dfrac{3}{2}$

$\sin \theta =$ $\cos \theta =$ $\tan \theta =$

$\csc \theta = \dfrac{3}{2}$ $\sec \theta =$ $\cot \theta =$

Solve each right triangle. Show the trigonometric equation used to find missing side lengths and angle measures. *Round side lengths to the nearest hundredth. Round angle measures to the nearest tenth.*

7.

8.
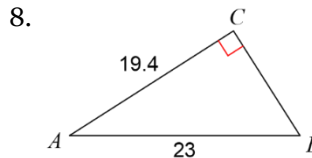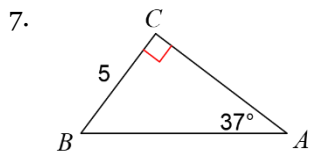
$AB =$ _____ $AC =$ _____ $m\angle B =$ _____ $BC =$ _____ $m\angle A =$ _____ $m\angle B =$ _____

Set up and solve a trigonometric equation to find the values of x and y. *Approximate the solutions to two decimal places.*

9.

10.

Write and solve a trigonometric equation that represents the situation. *Round solutions to the nearest tenth.*

11. The tailgate of a moving van is 3.5 feet above the ground. A loading ramp is attached to the rear of the van at an incline 10°. Find the length of the ramp to the nearest tenth of a foot.

12. A shelf and bracket are shown below. The shelf is perpendicular to the wall. What angle, x (in degrees) does the shelf make with the wall?
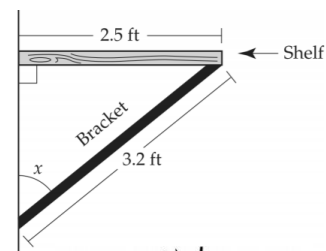

13. A dead tree was struck by lightning, causing it to fall over at a point 10 feet up from its base. If the fallen treetop forms a 40° with the ground, how tall was the tree originally?

14. Mariela is standing in a building and looking out of a window at a tree. The tree is 20 feet away from Mariela. Mariela's line of sight to the top of the tree creates a 42° angle of elevation, and her line of sight to the base of the tree creates a 31° angle of depression. What is the height of the tree?
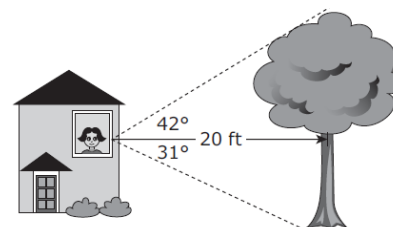
15. A spring is attached at one end to support B and at the other end to collar A, as represented in the figure. Collar A slides along the vertical bar between points C and D. In the figure, the angle θ is the angle created as the collar moves between points C and D.
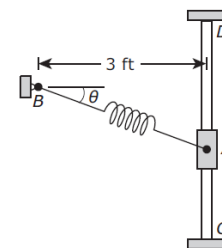
   a. When $\theta = 28°$, what is the distance from point A to point B?

   b. When the spring is stretched and the distance from point A to point B is 5.2 feet, what is the value of θ to the nearest tenth of a degree?

16. From the top of a roller coaster, 60 yards above the ground, a rider looks down and sees the merry-go-round and the Ferris wheel. If the angles of depression are 11° and 8° respectively, how far apart are the merry-go-round and the Ferris wheel?

Chapter 7: Right Triangles & Trigonometry