Name: _____   Period: _____

SM2H 8.2 Inverse Trig. Functions and Solving Right Triangles

Use a calculator to find each angle measure to the nearest degree.

1. sin A = 0.9563

2. tan B = 7.1154

3. cos A = 0.0349

4. $sin^{-1}\left(\frac{\sqrt{3}}{2}\right) =$

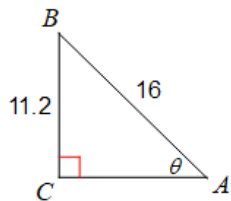5. $cos^{-1}\left(\frac{1}{2}\right) =$

6. $tan^{-1}(-1) =$
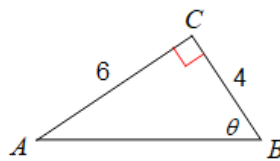
7. $cos^{-1}(0.9921) =$

8. $tan^{-1}(4.8973) =$

9. $sin^{-1}(0.3267) =$

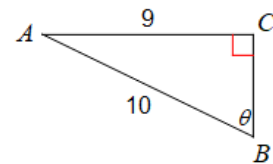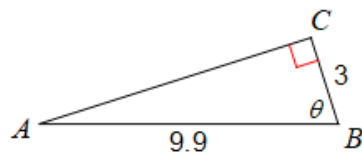**Find the measure of the indicated angle to the nearest tenth of a degree. <u>Show all work!</u>**
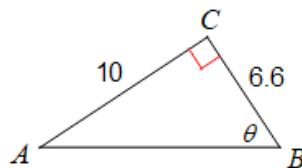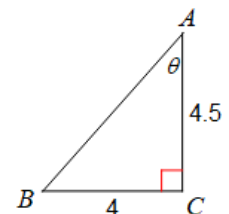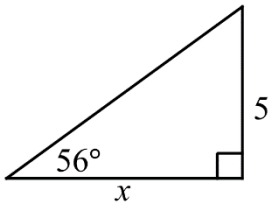
10.

11.

12.

13.

14.

15.

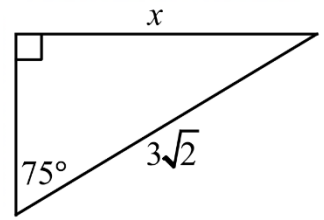**Identify which trigonometric ratio needed to solve for missing side. Write the correct equation, then solve**
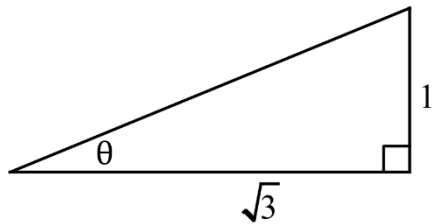
16.

56°   5 x

17.

11.5   44° x

18.

x 75° $3\sqrt{2}$
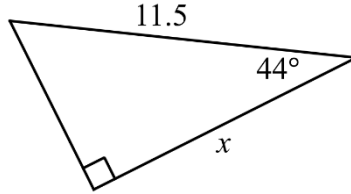
19. **Find the exact values of $sin\theta, cos\theta, tan\theta, csc\theta, sec\theta, cot\theta$. Put a <u>STAR next to angle θ.</u> Label your sides as opposite, adjacent, and hypotenuse.**

θ 1 $\sqrt{3}$

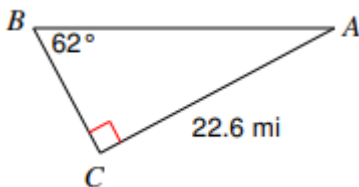$\sin\theta =$ $\csc\theta =$

$\cos\theta =$ $\sec\theta =$

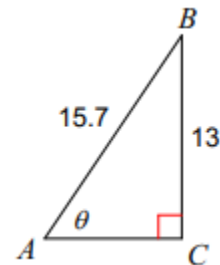$\tan\theta =$ $\cot\theta =$

Solve the triangle. Round answers to the nearest hundredth. If there is no picture provided, draw a picture FIRST!

20.

B   62°   A
22.6 mi
C

21.

B   15.7   13 θ A   C

$m\angle A =$ $a =$

$m\angle B =$ $b =$

$m\angle C =$ $c =$

$m\angle A =$ $a =$

$m\angle B =$ $b =$

$m\angle C =$ $c =$

22.

A — 4.5 mi — C, right angle at C, 42° at B, B at bottom.
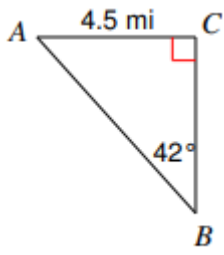
23. $b = 10, \ a = 9$

$m\angle A =$ $a =$

$m\angle B =$ $b =$
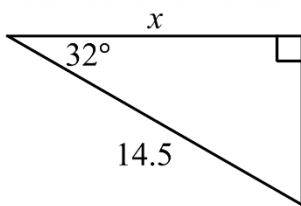
$m\angle C =$ $c =$

$m\angle A =$ $a =$
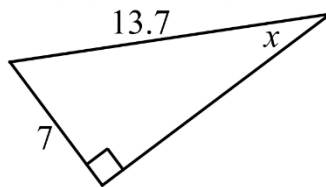
$m\angle B =$ $b =$

$m\angle C =$ $c =$

Write the correct trigonometric ratio to solve for the value of x. (x can be the <u>value of the angle</u> OR the <u>length of a side</u>). Then find the value of x.
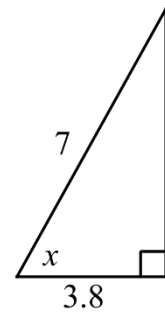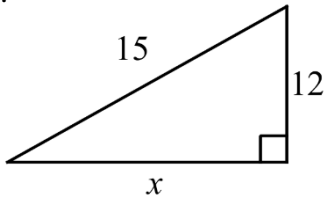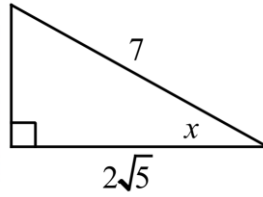
24.

32°, x, 14.5

25.

13.7, x, 7

26.
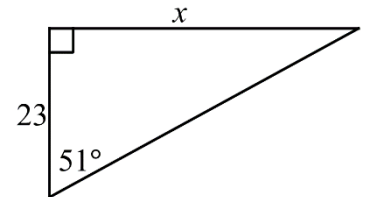

7, x, 3.8

27.

15

12

x

28.

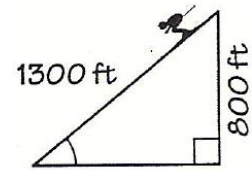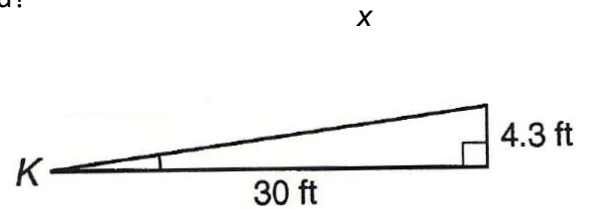7

x

$2\sqrt{5}$

29.

x

23

51°

30. A skier drops 800 vertical feet while skiing 1300 feet. What is the angle of the ski slope with the horizontal?
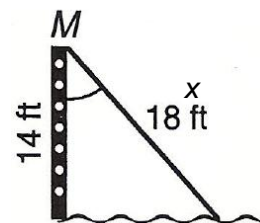
1300 ft

800 ft

31. A wheelchair ramp rises 4.3 ft. over a distance of 30 ft.
   a. How long is the ramp?
   b. What angle does the ramp make with the ground?

x

K

30 ft

4.3 ft

32. The top of an 18-ft waterslide is 14 ft. above the ground.
   c. What angle does the slide make with the vertical ladder?
   d. How far is the bottom of the slide from the bottom of the ladder?

M

14 ft

x

18 ft

Solve the triangle. Round answers to the nearest hundredth. If there is no picture provided, draw a picture FIRST!

33.   a = 10, ∠B = 67°

34. a = 13, b = 14

$m\angle A =$ $a =$

$m\angle B =$ $b =$

$m\angle C =$ $c =$

$m\angle A =$ $a =$

$m\angle B =$ $b =$

$m\angle C =$ $c =$