Name_____ ID: 1

# 7.4 ~ The Sine & Cosine Ratios

Past due on_____ Period_____

1) Given: $\triangle XYZ$ & $m\angle Y = 90°$
   Which of the following statements is true?

A) $\sin Z = \dfrac{YZ}{XZ}$ B) $\sin X = \dfrac{YZ}{XZ}$

C) $\tan X = \dfrac{XY}{ZY}$ D) $\cos Z = \dfrac{XY}{XZ}$

2) In triangle ABC, $m\angle B = 90°$, $AC = 50$,
    $AB = 48$, and $BC = 14$. Write a ratio, in
    simplest form, that represents the $\cos A$.

Set up and solve a trigonometric equation to find the indicated side length, *x*. Give an exact answer, solve the equation for *x*, and an approximate answer rounded to the nearest hundredth.

3)

26
29°
x

4)

x
47°
34

5)

49
16°
x

6)

x
63°
42

7)

x
18°
42

8)

x
49°
46
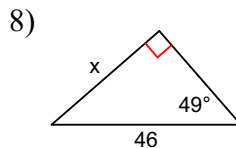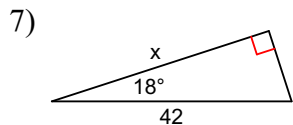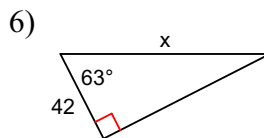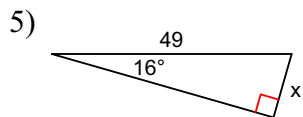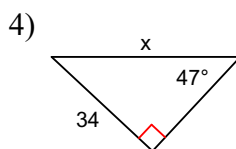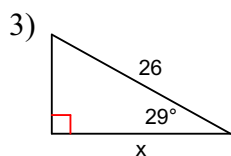
Write a trigonometric ratio then use inverse trigonometric functions to find the measure of the indicated angle rounded to the nearest tenth of a degree.

9)

42
?
45

10)

?
33
20

11)

5
?
13

12)

37
?
51

 M a d e   w i t h   I n f i n i t e   G e o m e t r y .
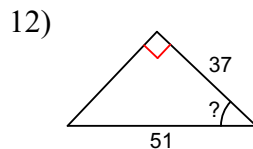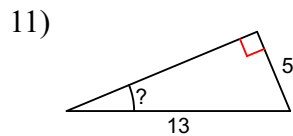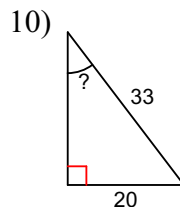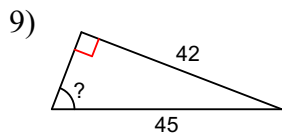
Draw a diagram that represents each situation. Write and solve a trigonometric equation (or ratio). Approximate your answer to the nearest tenth unless otherwise stated.

13) A ladder that is 15 feet long is leaning against a wall. The ladder makes an angle of 70° with the ground. Determine how high up the wall the ladder reaches.

14) A guy wire connects the top of an antenna to a point on level ground 5 feet from the base of the antenna. The angle formed by the wire and the ground is 80°. What is the length of the wire?

15) A cat is trapped on a tree branch 6.5 meters above the ground. Your ladder is only 6.7 meters long. If you place the ladder's tip on the branch, what angle will the ladder make with the ground?

16) Charlie Brown is flying a kite and it gets caught at the top of a tree. He has let out all 100 feet of string for the kite, and the angle that the string makes with the ground is 75°. How tall is the tree?

17) Remi is walking her dog. The dog's leash is 6 feet long and is attached to the dog walking 5 feet (horizontally) from Remi's hand. What is the angle formed by the leash and the horizontal from the dog's collar?