

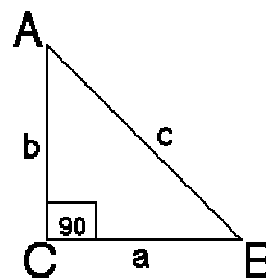
Use the right triangle below to answer questions 1 – 6.

1) If  $a = 7$  and  $c = 25$ , find  $\sin A$ .

2) If  $b = 5$  and  $c = 8$ , find  $a$ .

3) If  $a = 10$  and  $c = 15$ , find  $\cos A$ .

4) If  $m\angle B = 49^\circ$  and  $b = 26$ , find  $a$ .



5) If  $m\angle A = 32^\circ$  and  $c = 5.2$ , find  $b$ .

6) If  $a = 4.5$  and  $b = 7.2$ ,

a) find  $m\angle A$ .

b) find  $m\angle B$ .

Find the values of the following.

7)  $\sin 82.4^\circ$

8)  $\cos 56.8^\circ$

9)  $\tan 73^\circ$

10)  $\csc 42^\circ$

11)  $\cot 63.7^\circ$

12)  $\sec 29^\circ$

Solve for  $x$ :

13)  $\sin 32^\circ = \frac{x}{13}$

14)  $\tan 83.2^\circ = \frac{20}{x}$

15)  $\csc 47^\circ = \frac{7.3}{x}$

16) Given the triangle to the right, find the values of the following.

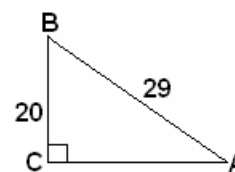
a)  $CA =$  \_\_\_\_\_

b)  $\sin B$

c)  $\cos B$

d)  $\tan B$

e)  $\cot B$



f)  $\csc B$

g)  $\sec B$

h)  $m\angle B$

i)  $m\angle A$

Find the acute angle measure that satisfies the following. Round to the nearest **tenth** of a degree.

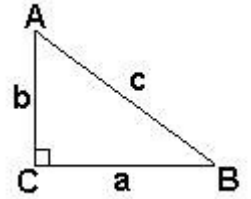
17)  $\sin A = 0.4389$

18)  $\tan A = 0.9855$

19)  $\sec A = 4.873$

20) Given a “standard” right triangle where side  $a = 11$  and  $m\angle B = 38^\circ$ , find the following:

- a)  $m\angle A =$  \_\_\_\_\_      b) side  $b \approx$  \_\_\_\_\_      c) side  $c \approx$  \_\_\_\_\_



21) Convert  $21^\circ 20' 45''$  to decimal notation.  
Round your answer to three decimal places.

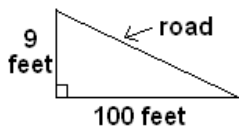
22) Convert  $76.824^\circ$  to degrees, minutes, and seconds.  
Round your answer to the nearest second.

23) A 38-foot pole casts a shadow that is 25 feet long. What is the angle of elevation of the sun at this time?

24) Sam is driving to Nashville through the Appalachian Mountains. He passes the sign below on his way up the side of the mountain. “9% grade” means that for each 100 feet of horizontal length, the ground rises 9 feet vertically. Sam drives the entire 7 miles up the side of the mountain. (“7 miles” is the length of the actual road he drives.)

a) How many feet does he drive up the mountain? (5280 feet = 1 mile)

b) If a (different) hill with 9% grade is exactly 100 feet horizontally, how long is the actual road up the side of that hill?



c) Using similar triangles and part b, what is the vertical rise up the side of the mountain?

d) What is the angle of elevation of the road from the bottom of the mountain to the top of the mountain 7 miles away?