

**Simplify all answers and show your work!**

1) Corresponding angles in a similar triangle are \_\_\_\_\_.

2) The Pythagorean Theorem may only be used with \_\_\_\_\_ triangles.

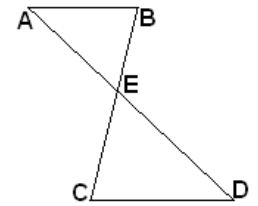
3) Fill in the following ratios using the words “opposite”, adjacent”, and “hypotenuse”:

a)  $\cot A =$  \_\_\_\_\_      b)  $\sec A =$  \_\_\_\_\_      c)  $\csc A =$  \_\_\_\_\_

4) A tree 66 feet tall casts a shadow 132 feet long. Brad is  $5\frac{1}{2}$  feet tall. How long is Brad's shadow?

5) If  $\triangle ABE \sim \triangle DCE$  where  $AB = 5.1$ ,  $AE = 6.5$ ,  $BE = 4.8$ , and  $DC = 6.5$ , find the following:

a)  $CE =$  \_\_\_\_\_      b)  $ED =$  \_\_\_\_\_

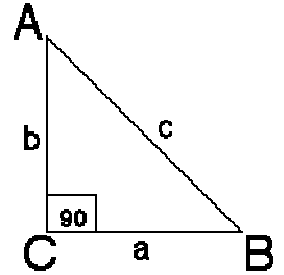


c)  $\angle BAE \cong$  \_\_\_\_\_      d)  $\angle AEB \cong$  \_\_\_\_\_      e)  $\angle ABE \cong$  \_\_\_\_\_

Use the right triangle below to answer questions 6 – 11.

6) If  $b = 6$  and  $c = 7$ , find  $\sin B$ .

7) If  $a = 5$  and  $c = 13$ , find  $b$ .



8) If  $a = 8$  and  $c = 7$ , find  $\cos A$ .

9) If  $m\angle B = 32^\circ$  and  $a = 9$ , find  $b$ .

10) If  $m\angle A = 49^\circ$  and  $c = 11.3$ , find  $a$ .

11) If  $a = 8.7$  and  $b = 9.4$ ,

a) find  $m\angle A$ .

b) find  $m\angle B$ .

Find the values of the following.

12)  $\sin 32.9^\circ$

13)  $\cos 12^\circ$

14)  $\tan 88^\circ$

15)  $\sec 76.1^\circ$

16)  $\csc 20^\circ$

Solve for  $x$ :

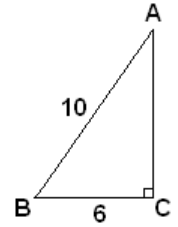
17)  $\cos 25^\circ = \frac{3}{x}$

18)  $\tan 42^\circ = \frac{x}{1.3}$

19)  $\cot 80^\circ = \frac{12.9}{x}$

20) Given the triangle to the right, find the following.

a)  $AC = \underline{\hspace{2cm}}$       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.

21)  $\sin A = 0.3972$

22)  $\sec A = 6.7$

23) Convert to decimal degree form:  
 $168^\circ 24' 49''$

24) Convert to degrees, minutes, and seconds,  
Round to the nearest second:  $52.648^\circ$

25) Find the complement of  $32^\circ 29' 48''$ .

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27) According to the American National Standards Institute (ANSI), the angle of elevation that provides the best slip resistance for ladders is  $75^\circ$ . If a 10-foot ladder is resting against a wall at this angle, how far up the wall does the ladder reach?

28) Two ships leave port at same time. Ship A is heading due north and Ship B is heading due east. Twelve hours later they are 250 miles apart. If Ship A had traveled 120 miles from the port, how many miles had Ship B traveled?

