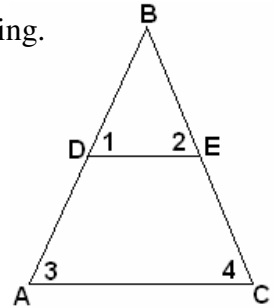


**Simplify all answers and show your work!**

- 1) The Pythagorean Theorem can only be used with \_\_\_\_\_ triangles.
- 2) In similar triangles, corresponding angles are \_\_\_\_\_ and corresponding sides are \_\_\_\_\_.
- 3) The Hypotenuse-Leg Theorem can only be used with \_\_\_\_\_ triangles.
- 4) The symbol  $\sim$  means \_\_\_\_\_.
- 5) If  $\triangle ABC \sim \triangle DBE$  where  $AB = 8.3$ ,  $BC = 8.1$ ,  $AC = 6.2$ , and  $DE = 4.8$ , find the following.
  - a)  $DB =$  \_\_\_\_\_
  - b)  $EB =$  \_\_\_\_\_

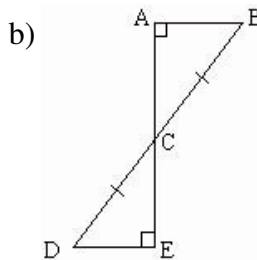
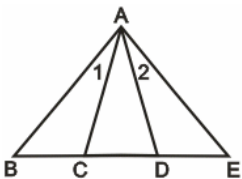


- c)  $\angle ABC \cong$  \_\_\_\_\_
- d)  $\angle BAC \cong$  \_\_\_\_\_
- e)  $\angle BCA \cong$  \_\_\_\_\_

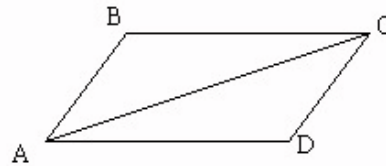
6) A building casts a shadow 36 m long. At the same time, the shadow cast by a 45-cm tall pole is 69 cm long. Find the height of the building. (Note: It doesn't make any difference that these aren't both in meters or centimeters.)

7) Determine which theorem – if any – proves congruence for the given triangles: SSS, SAS, ASA, AAS, HL, or none.

- a)  $\angle 1 \cong \angle 2$ ,  $\triangle ABE$  is isosceles.  
Why is  $\triangle ACB \cong \triangle ADE$ ? (If it is.)

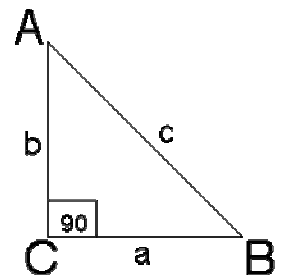


- c) ABCD is a parallelogram.



Use the right triangle below to answer questions 7 – 12.

- 8) If  $a = 8$  and  $c = 11$ , find  $\cos B$ .
- 9) If  $a = 7$  and  $c = 25$ , find  $b$ .
- 10) If  $a = 7$  and  $b = 5$ , find  $\sin A$ .
- 11) If  $m\angle B = 51^\circ$  and  $a = 12$ , find  $c$ .



- 12) If  $m\angle A = 21^\circ$  and  $c = 8.1$ , find  $b$ .
- 13) If  $a = 3.4$  and  $b = 5.2$ ,
  - a) find  $m\angle A$ .
  - b) find  $m\angle B$ .

Find the values of the following.

13)  $\tan 38.35^\circ$

14)  $\sin 86.3^\circ$

15)  $\cos 25.9^\circ$

16)  $\csc 57.68^\circ$

17)  $\sec 73^\circ$

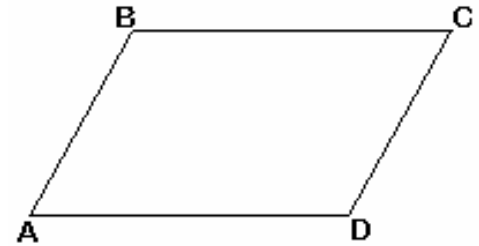
Given the parallelogram to the right, answer the following questions.

18) If  $AB = 32.9$  and  $BC = 59.6$ , find the following.

a)  $CD =$  \_\_\_\_\_

b)  $AD =$  \_\_\_\_\_

c) The perimeter of the parallelogram = \_\_\_\_\_



19) Given  $m\angle A = 75.6^\circ$ , find the following.

a)  $m\angle C =$  \_\_\_\_\_

b)  $m\angle B =$  \_\_\_\_\_

c)  $m\angle D =$  \_\_\_\_\_

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

a)  $CB =$  \_\_\_\_\_

b)  $\sin A$

c)  $\cos A$

d)  $\tan A$

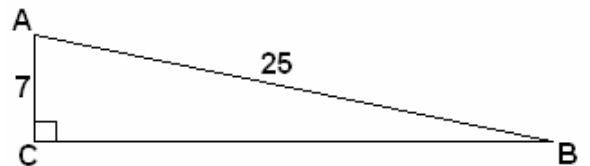
e)  $\cot A$

f)  $\csc A$

g)  $\sec A$

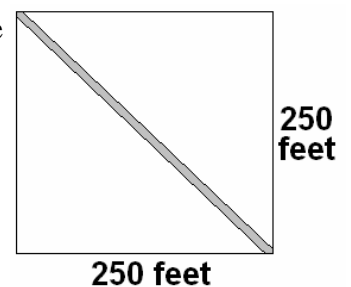
h)  $m\angle A$

i)  $m\angle B$



21) A ladder is extended to a length of 28 feet long and the top is resting against the side of an apartment building. The base of the ladder is on the ground 4 feet from the base of the house. At what height does the ladder touch the apartment building wall?

22) A square park that is 250 ft by 250 ft has a brick pathway through the center on the diagonal. How many feet long is the brick pathway?



23) On a blueprint, four inches on the blueprint corresponds to 10 feet in real life. What are the dimensions of a rectangular room that measure 6 inches by 8.5 inches? (Hint: Proportions)