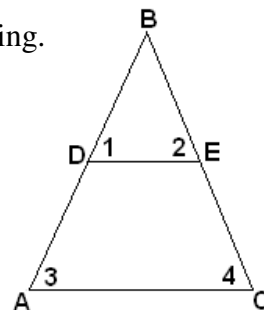


**Simplify all answers and show your work!**

- 1) The Pythagorean Theorem can only be used with right triangles.
- 2) In similar triangles, corresponding angles are equal and corresponding sides are proportional.
- 3) The Hypotenuse-Leg Theorem can only be used with right triangles.
- 4) The symbol  $\sim$  means similar to.
- 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)  $DB =$  6.425
  - b)  $EB =$  6.271



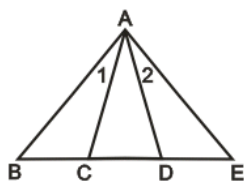
- c)  $\angle ABC \cong$   $\angle DBE$
- d)  $\angle BAC \cong$   $\angle BDE$
- e)  $\angle BCA \cong$   $\angle BED$

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.)

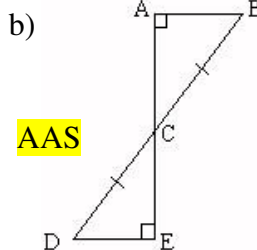
23.5 m

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.)

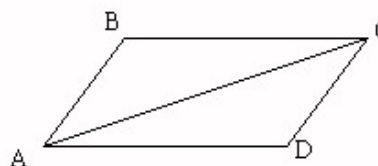


ASA



AAS

- c) ABCD is a parallelogram.



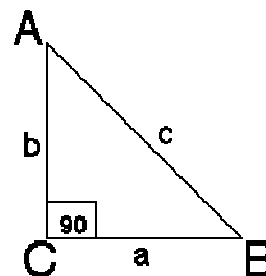
SSS

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  $b$ .

$\frac{8}{11}$

$b = 24$



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

0.8137

19.1

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

7.6

- 13) If  $a = 3.4$  and  $b = 5.2$ ,

a) find  $m\angle A$ .

b) find  $m\angle B$ .

$33.2^\circ$

$56.8^\circ$

Find the values of the following.

13)  $\tan 38.35^\circ$

**0.7912**

14)  $\sin 86.3^\circ$

**0.9979**

15)  $\cos 25.9^\circ$

**0.8996**

16)  $\csc 57.68^\circ$

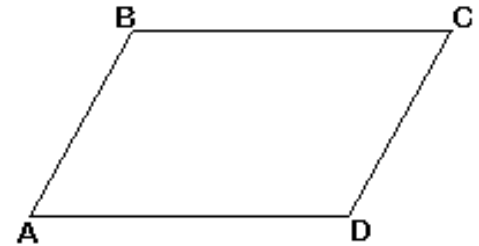
**1.1833**

17)  $\sec 73^\circ$

**3.4203**

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

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



a)  $CD = \underline{32.9}$

b)  $AD = \underline{59.6}$

c) The perimeter of the parallelogram = **185**

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

a)  $m\angle C = \underline{75.6^\circ}$

b)  $m\angle B = \underline{104.4^\circ}$

c)  $m\angle D = \underline{104.4^\circ}$

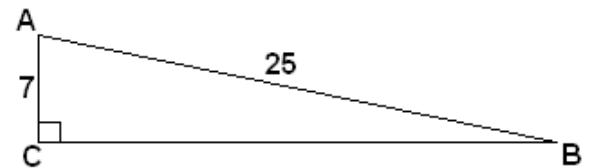
20) Given the triangle to the right, find the following.

a)  $CB = \underline{24}$

b)  $\sin A$

c)  $\cos A$

d)  $\tan A$



**$\frac{24}{25}$**

**$\frac{7}{25}$**

**$\frac{24}{7}$**

e)  $\cot A$

f)  $\csc A$

g)  $\sec A$

h)  $m\angle A$

i)  $m\angle B$

**$\frac{7}{24}$**

**$\frac{25}{24}$**

**$\frac{25}{7}$**

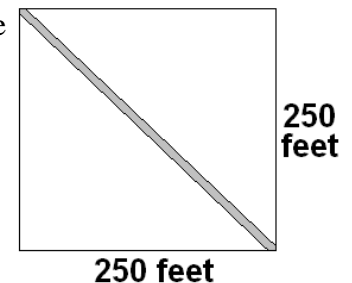
**$73.7^\circ$**

**$16.3^\circ$**

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?

**27.7 feet**

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?



**353.6 feet**

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)

**15 feet by 21.25 feet (or 21 feet 3 inches)**