

NAME: \_\_\_\_\_

Period: \_\_\_\_\_ Date: \_\_\_\_\_

# Similarity

Solve these proportions.

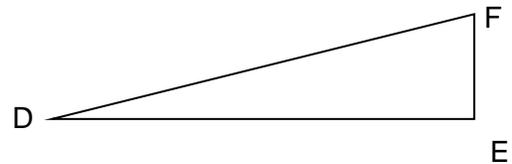
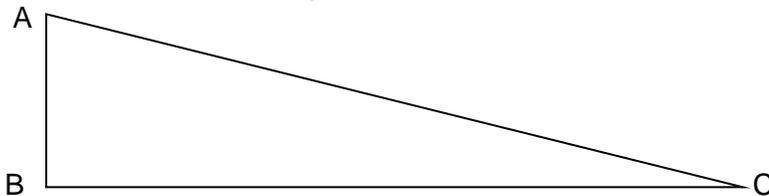
\_\_\_\_\_ 1.  $\frac{x}{7} = \frac{5}{9}$

\_\_\_\_\_ 3.  $\frac{4}{3} = \frac{x}{8}$

\_\_\_\_\_ 2.  $\frac{3}{x} = \frac{12}{20}$

\_\_\_\_\_ 4.  $\frac{13}{7} = \frac{5}{x}$

Use these similar figures for the problems below.



\_\_\_\_\_ 5. What angle has the same measure as  $\angle A$ ?

\_\_\_\_\_ 6. What angle has the same measure as  $\angle D$ ?

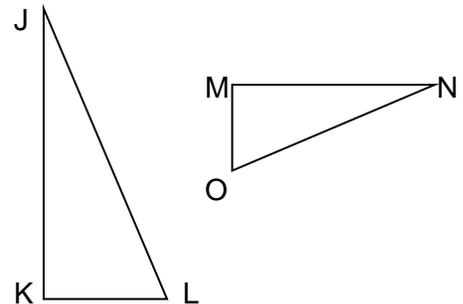
\_\_\_\_\_ and \_\_\_\_\_ 7. What other pair of angles have the same measure?

\_\_\_\_\_ 8. REMEMBER: When you say triangles are similar, you must list the corresponding angles in order. Which of these statements would be correct for the figures above?

- A.  $\triangle ABC \sim \triangle DEF$   
B.  $\triangle ABC \sim \triangle FED$

- C.  $\triangle ABC \sim \triangle DFE$   
D.  $\triangle ABC \sim \triangle EDF$

\_\_\_\_\_ 9. Write a statement that says that the triangles at right are similar. (Be sure to list the angles in the correct order.)

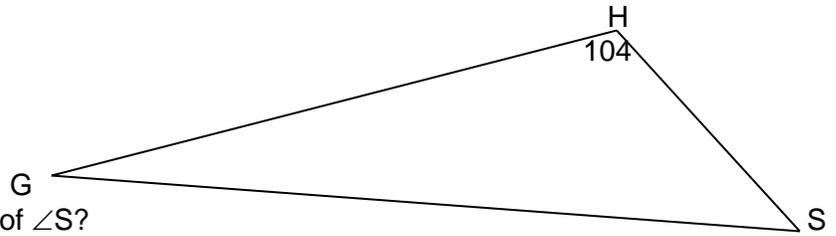
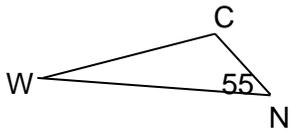


\_\_\_\_\_ 10. If  $\angle K$  measures  $90^\circ$ , how big is  $\angle M$ ?

\_\_\_\_\_ 11. If  $\angle N$  measures  $20^\circ$ , what other angle measures  $20^\circ$ ?

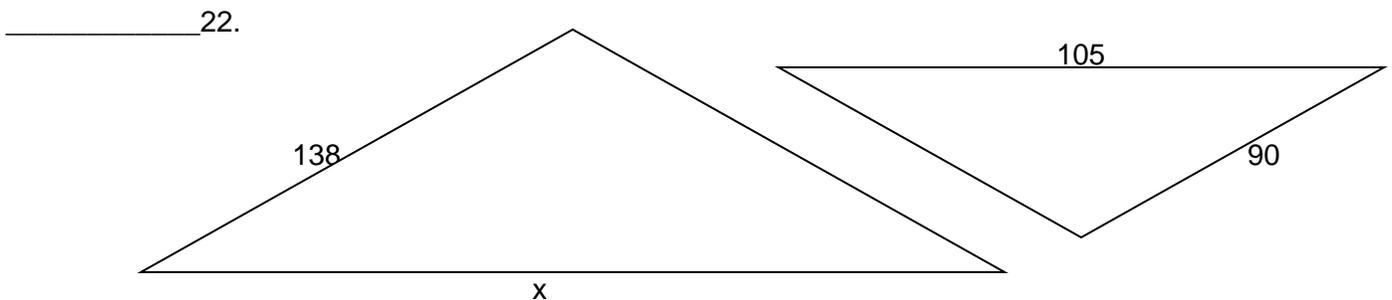
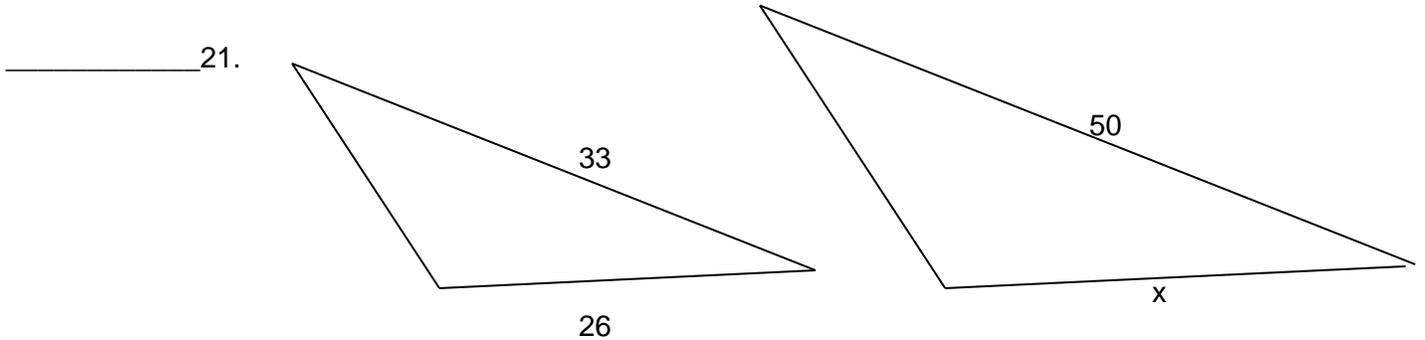
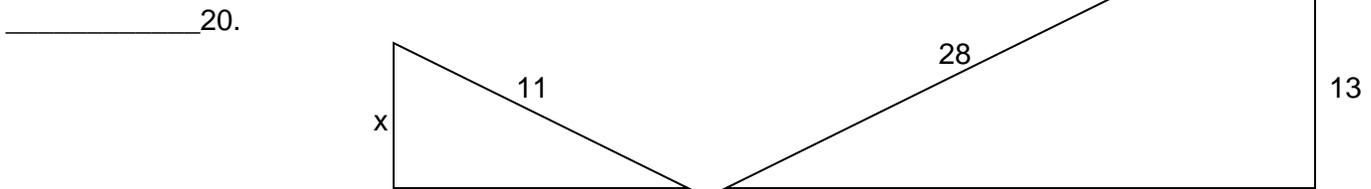
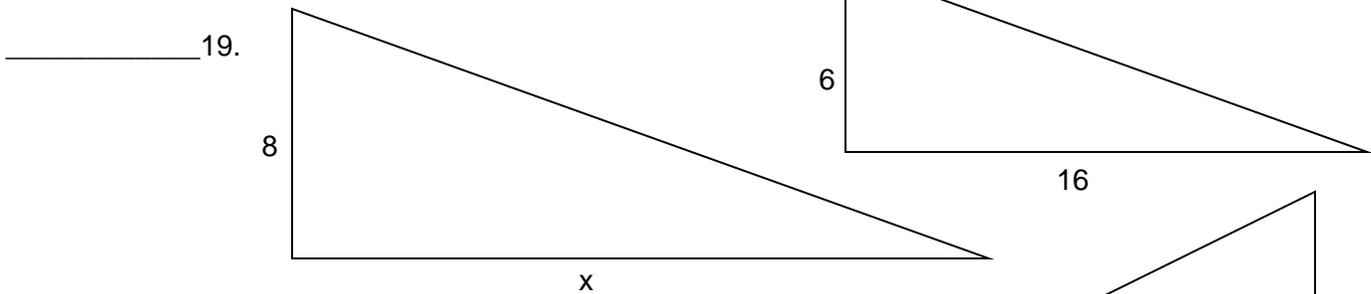
\_\_\_\_\_ 12. Use the information in Problems 10 and 11 to find the measure of  $\angle O$ .

\_\_\_\_\_ 13. What other angle has the same measure as  $\angle O$ ?

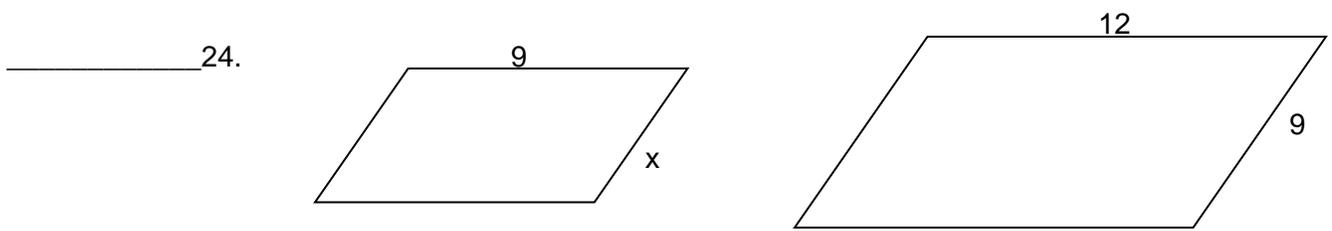
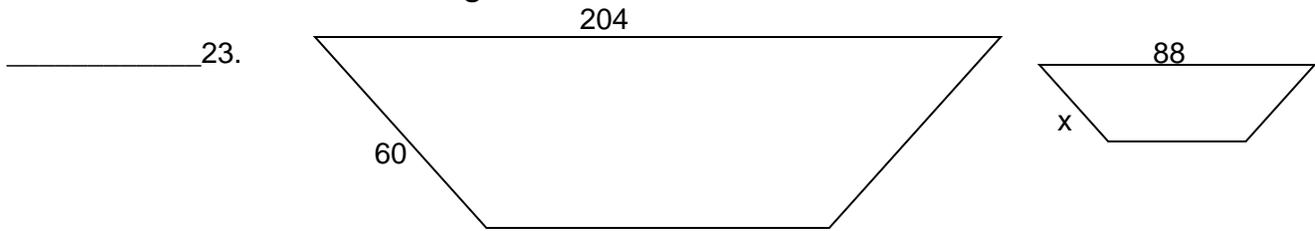


- \_\_\_\_\_ 14. What is the measure of  $\angle S$ ?
- \_\_\_\_\_ 15. What is the measure of  $\angle C$ ?
- \_\_\_\_\_ 16. What is the measure of  $\angle W$ ? \_\_\_\_\_ 17. What is the measure of  $\angle G$ ?
- \_\_\_\_\_ 18. Write a statement that says that the triangles are similar. (Be sure to list the angles in the correct order.)

Solve for "x". Assume the triangles are similar.



Solve for "x". Assume the figures are similar.



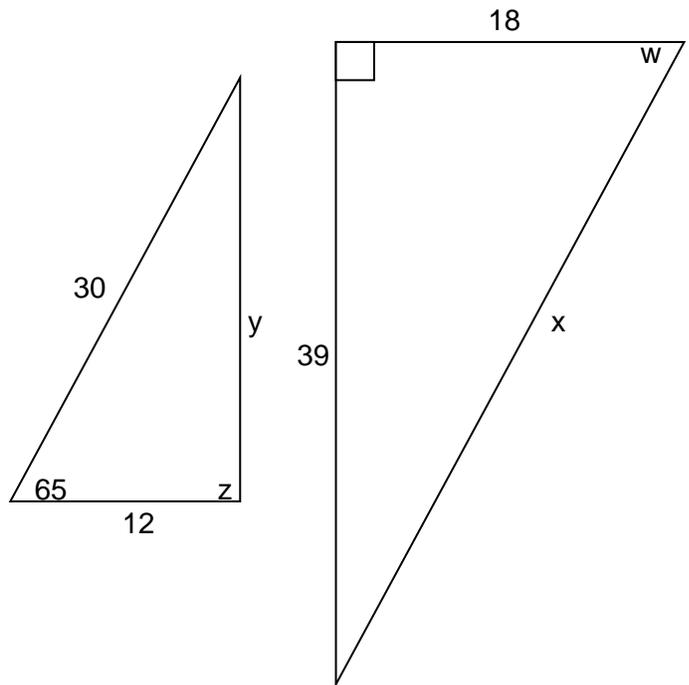
Use the triangles at right for the problems below.

\_\_\_\_\_ 25. Find x.

\_\_\_\_\_ 26. Find y.

\_\_\_\_\_ 27. Find z.

\_\_\_\_\_ 28. Find w.



For the problems below:

A. Write a proportion.

B. Solve.

\_\_\_\_\_ 29. A Pepsi bottle stands 8 inches tall. The diameter of the bottom is  $1\frac{1}{2}$  inches. A similar Pepsi bottle has a bottom diameter of 1 inch. How tall is it?

\_\_\_\_\_ 30. On a map the distance from Algona to Ft. Dodge is 2 inches. The distance in real life is 43 miles. Keokuk and Waterloo are 163 miles apart. How far apart would they be on the map? (NOTE: You don't need to bother converting between inches and miles.)

- \_\_\_\_\_ 31. The euro bills they use in Europe get bigger the more money is worth, and all the bills are similar. A €5 bill measures 11cm long and 6cm wide. The €500 bill is 18cm wide. How tall is it?
- \_\_\_\_\_ 32. When Mr. Burrow writes the letter "F" on an overhead projector, the top of the letter is exactly 5mm long. When the "F" is projected on the wall, the top of the letter is 2 inches wide. If the side of the "F" is 6 inches long on the wall, how long is it on the projector?
- \_\_\_\_\_ 33. Pierre is 66 inches tall. His nose is 3 inches long. His body is similar in shape to his little brother Jacques, whose nose is only 2 inches long. How tall is Jacques?
- \_\_\_\_\_ 34. Boris is hiking in Siberia, when he suddenly comes face to face with the abominable snowman. Boris is 5 feet tall, and his shadow is 4 feet long. If the snowman's shadow is 20 feet long, how tall is the abominable snowman?
- \_\_\_\_\_ 35. A six-foot tall Christmas tree measures  $4\frac{1}{2}$  feet wide across the bottom. How wide at the bottom would an  $8\frac{1}{2}$  foot tall Christmas tree be?