2.8 Proportions and Similar Figures

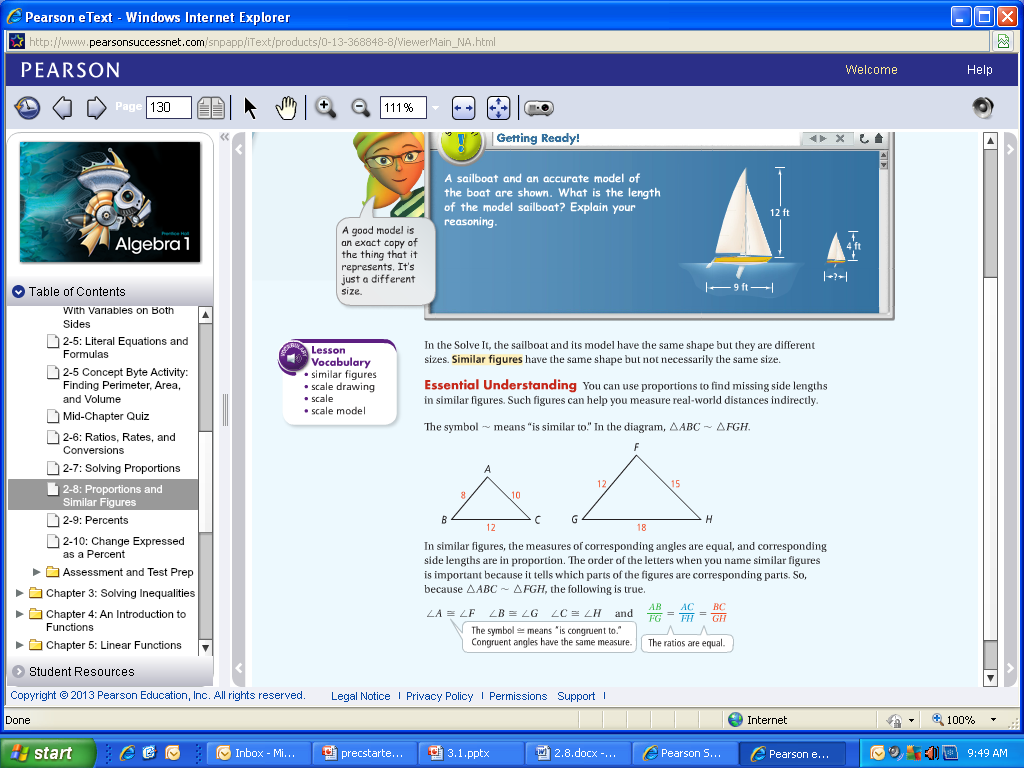
**Objective: To find missing lengths in similar figures**

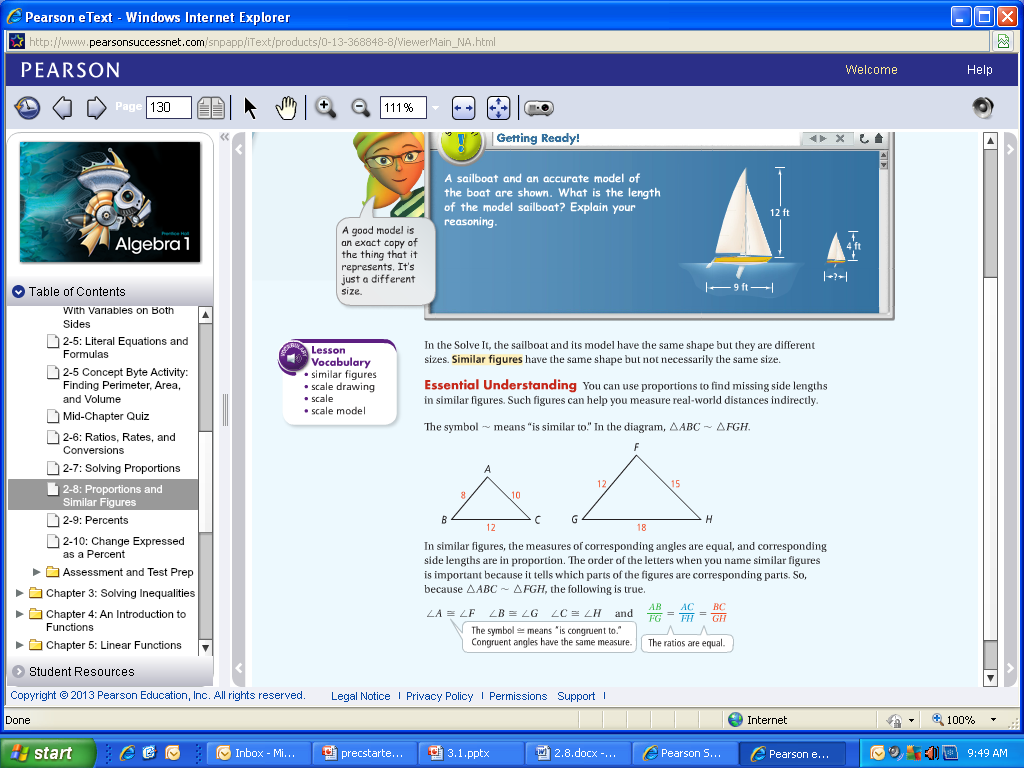
**To use similar figures when measuring indirectly**

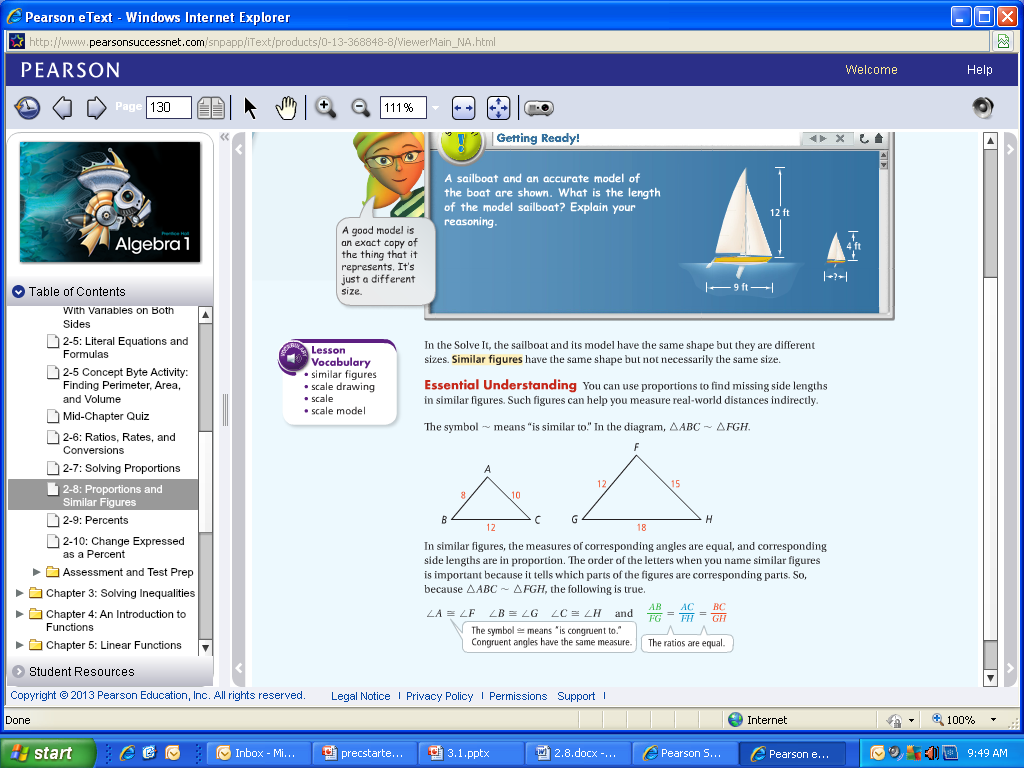
Starter: Solve the proportion

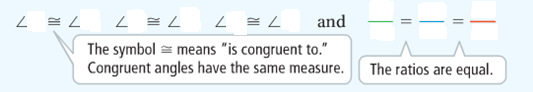
1. 2.

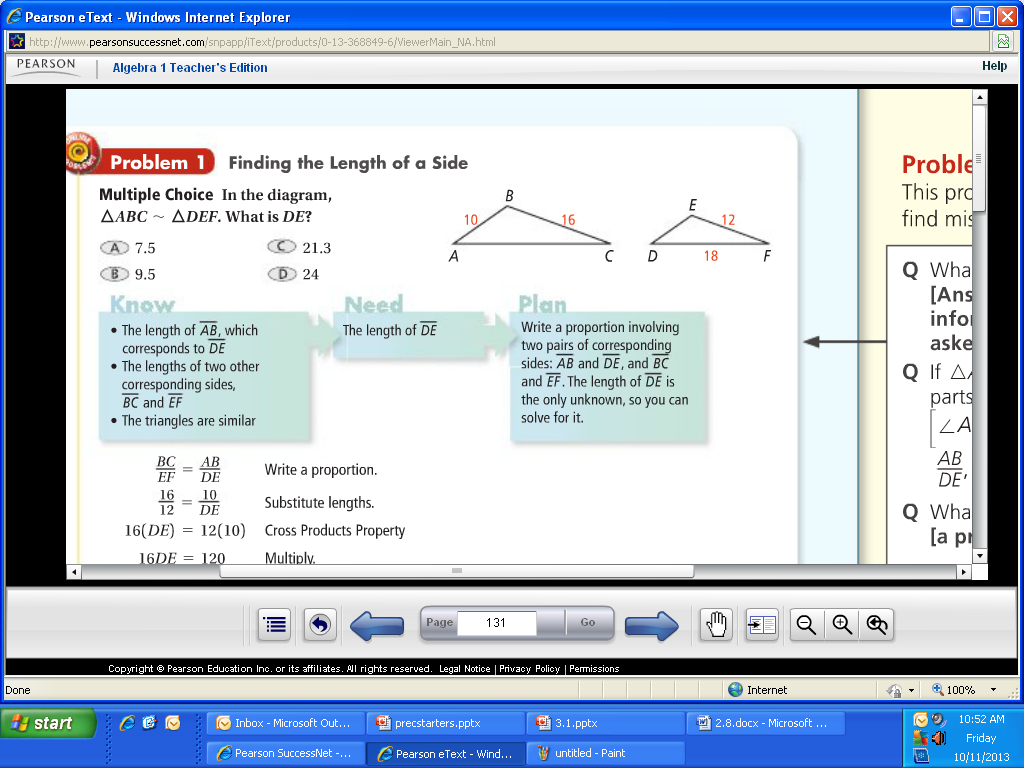
Def: **\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_ have the same shape but are not necessarily the same size. The symbol that we use to label figures as similar is \_\_\_\_\_\_\_\_\_.**

You can use proportions to find missing side lengths in similar figures. Such figures can help you measure real world distances indirectly.

In the diagram,

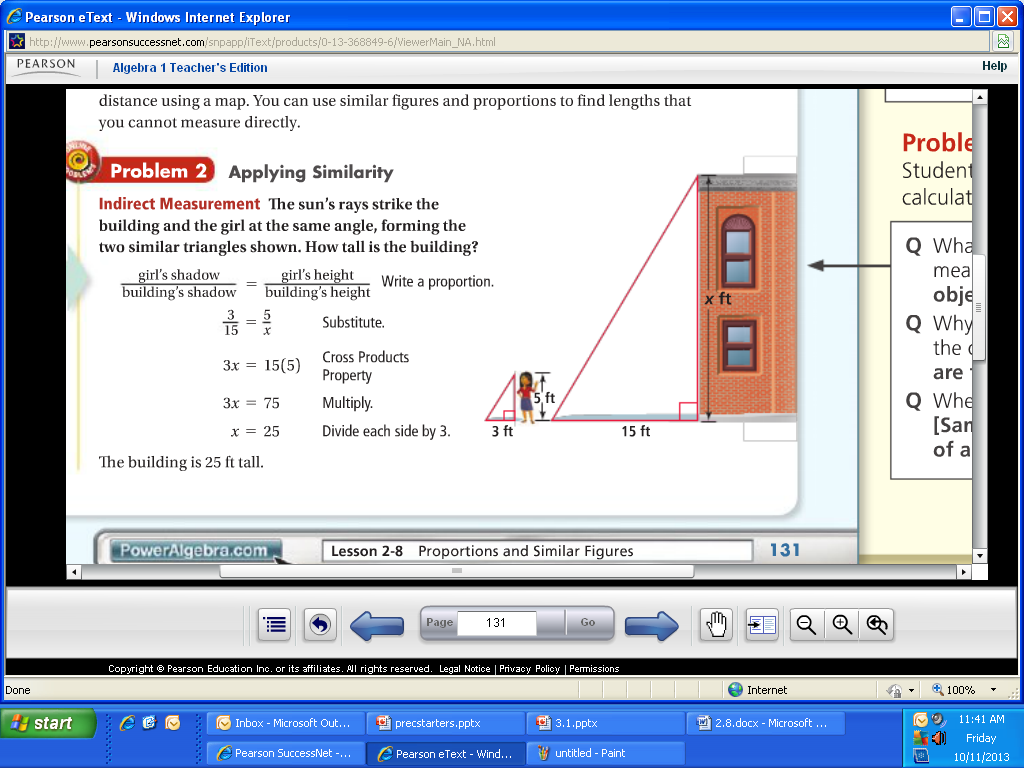
In SIMILAR figures, the measures of corresponding angles are \_\_\_\_\_\_\_\_\_\_\_\_\_, and corresponding side lengths are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The **order** of the letters when you name similar figures is **important** because it tells which parts of the figures are corresponding parts. So because 00the following is true,



Try finding the length of a side!

1.

Using the same figures, what is the length of side AC?

*Indirect Measurement.* The sun’s rays strike the building and the girl at the same angle, forming the two similar triangles shown. How tall is the building?

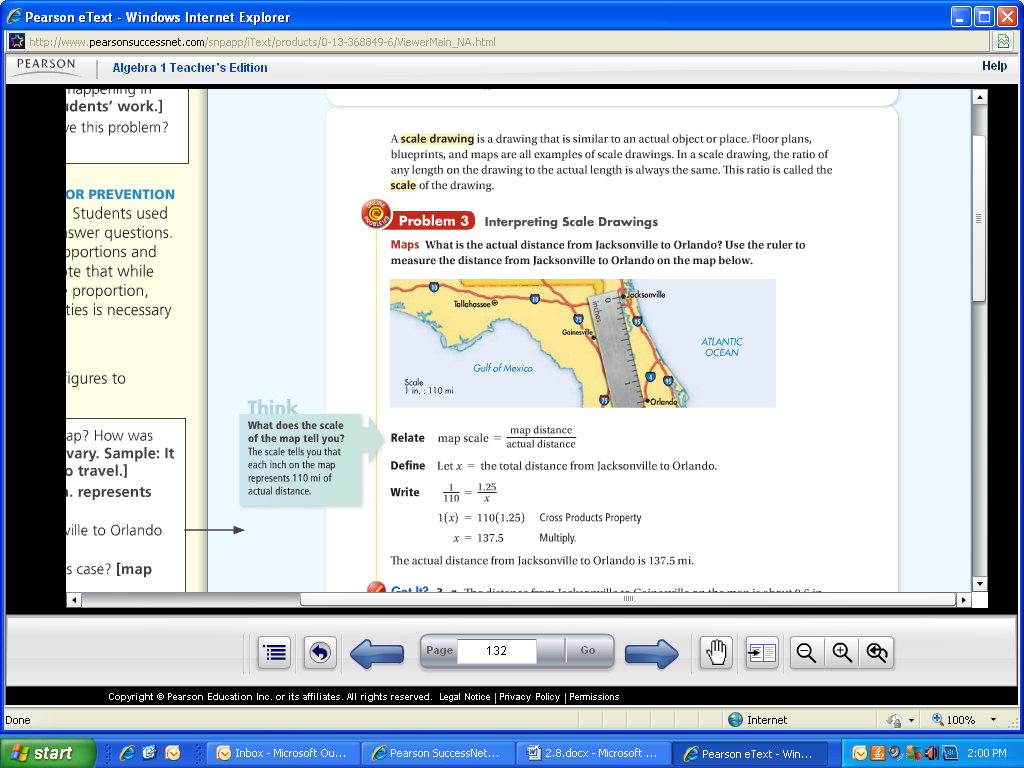
Write a proportion.

Is this the only way to write the proportion? If not, how else could you write it?

Try it!!

1. A man who is 6 ft. tall is standing next to a flagpole. The shadow of the man is 3.5 ft. and the shadow of the flagpole is 17.5 ft. What us the height of the flagpole?

A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a drawing that is SIMILAR to an actual object or place. Floor plans, blue prints, and maps are all examples of scale drawings. In a scale drawing, the ratio of any length on the drawing to the actual length is always the same. The ratio is called the \_\_\_\_\_\_\_\_\_\_\_ of the drawing.

*Interpret Scale Drawings.* What us the actual distance from Jacksonville to Orlando? Use the ruler to measure the distance from Jacksonville on Orlando on the map below.

Write a proportion to solve.

Map scale=

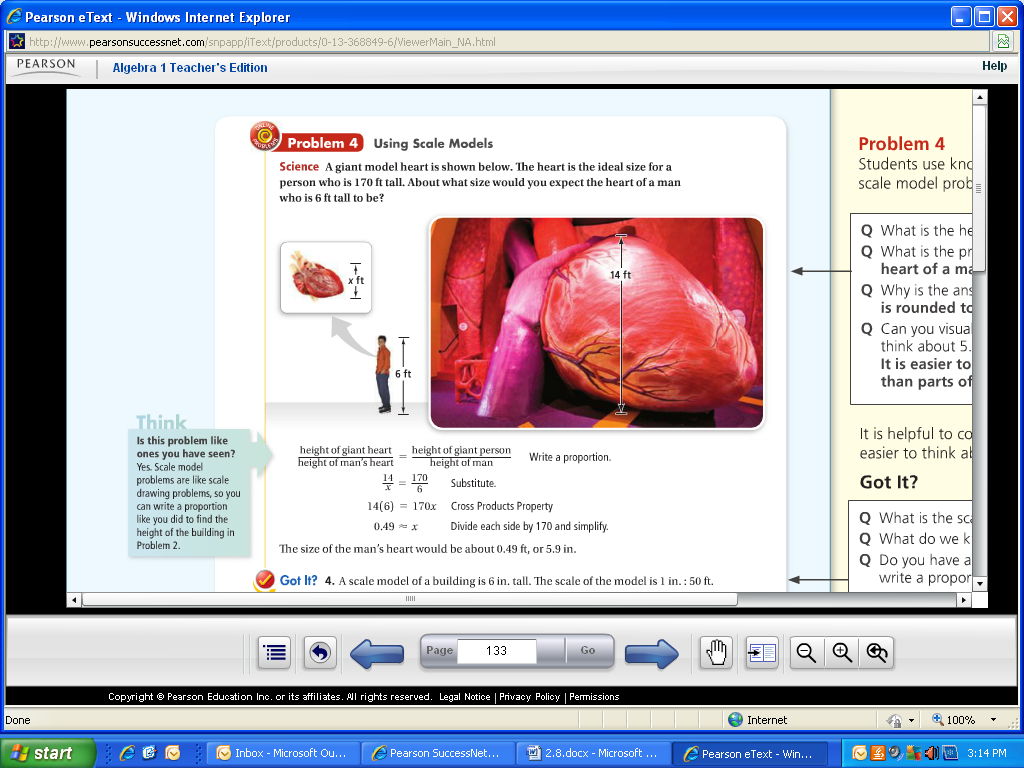
Let *x=* the total distance from Jacksonville to Orlando

Try it!

1. A) The distance from Jacksonville to Gainesville on the map is about 0.6in. What is the actual distance from Jacksonville to Gainesville?

B) If you know the actual distance between two cities is 250 mi and that the cities are 2 in apart on a map, how can you find the scale of the map?

**A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a three dimensional model that is SIMILAR to a three-dimensional object. The ratio of a linear measurement of a model to the corresponding linear measurement of the actual object is always the same. This ratio is called the \_\_\_\_\_\_\_\_\_\_ of the model.**

*Using Scale Models.* A giant model heart is shown below. The heart is the ideal size for a person who is 170 ft tall. About what size would you expect the heart of a man who is 6 ft tall to be?

Write a proportion.

Try it!

1. A scale model of a building is 6 in tall. The scale of the model is 1 in: 50 ft. How tall is the actual building?

HW: Pg. 135 #7-25odd, 26

