Launch:

Please list everything you know about similarity-- Think back to chapter 4!

≅ ~

6.1 Getting Started

Objective: To use similar triangles to find unknown lengths.

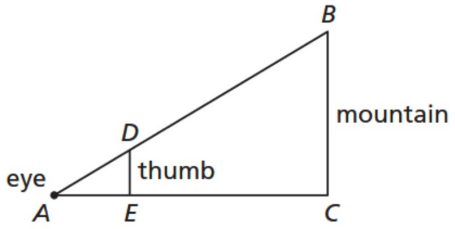
P. 443 (2 & 3)
(skip d)

* Not Homework
* In your Notes

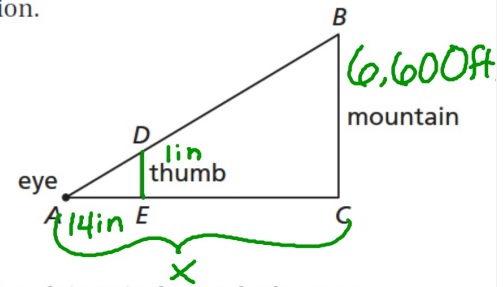
2. From their boat off the coast of Maine, two sailors can see the faraway top of Mount Washington, towering 6600 feet above sea level. One of the two sailors holds her left arm straight out in front of her in a "thumbs up" gesture to get an idea of their distance from the base of the mountain.

She positions herself so that she can see how much of her thumb covers the mountain. She covers the mountain completely—the whole 6600 feet behind her thumb!

Her companion measures the distance from her eye to the place on her thumb that lines up with the edge of the shore. Then they measure the length of the thumb that covers Mount Washington. Using similar triangles, they calculate their distance to the base of the mountain.



Here is a rough sketch of the situation.



a. What assumption is built into the sketch?

b. Name a pair of similar triangles in the sketch.

c. The length of your thumb covering the mountain is 1 inch. The distance from your eye to the bottom of your thumb is 14 inches. Calculate your distance from the mountain.

b. $\triangle ADE \sim \triangle ABC$

c. $\frac{14\text{in}}{x\text{ft}} = \frac{1\text{in}}{6{,}600\text{ft}}$

$x = 92{,}400\text{ft.} \rightarrow$

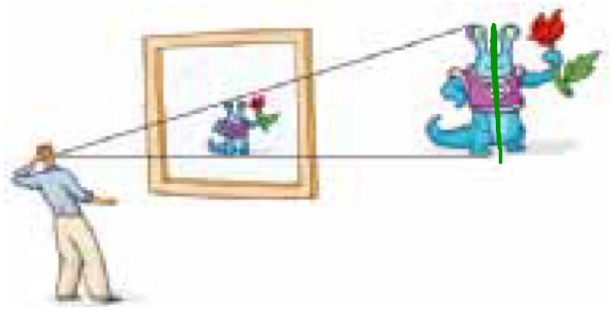
5280ft = 1mi

17.5mi

3. You look out a window and see a person standing far away. The person's image fills just part of the window. If you could trace the image on the window, you could measure the height of the image. You could also find the height of the image if you knew the following.

- the person's height
- your distance from the window
- your distance from the person

Here is a sketch of that situation. Carefully describe how you could use similar triangles to determine how tall the image on the window would be.



On a piece of paper to be turned in, choose 2 of the language lines that are posted on the wall.

Summarize your thoughts about today's explore by filling in the blanks.

EXAMPLES:

Based on what we learned today about similar triangles,
I think
that there could be great uses for triangle similarity
in many different real world situations.

I have a question about
the correct way to set up proportions in similar triangles

NOTE: some are more appropriate to use for this than others

On Your Own

Homework: Worksheet Similar Triangle Word Problems

11. A child $3\frac{1}{2}$ feet tall is standing next to a very tall basketball player. The child's sister notices that the player's shadow is about twice as long as the child's. She quickly estimates the player's height. What value does she get?