



INDIRECT MEASUREMENTS WITH SIMILAR TRIANGLES

Mr. Kruczinski

WARM-UP PROBLEM

- ◉ **Application** Ramon and Sabina are oceanography students studying the habitat of a Hawaiian fish called Humuhumunukunukuapua'a. They are going to use the capture-recapture method to determine the fish population. They first capture and tag 84 fish, which they release back into the ocean. After one week, Ramon and Sabina catch another 64. Only 12 have tags. Can you estimate the population of Humuhumunukunukuapua'a?



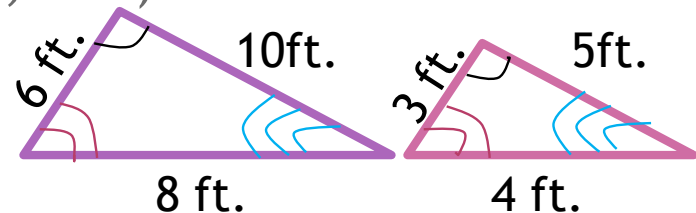
SIMILAR TRIANGLES -- REVIEW

- What are the properties of similar triangles?

- They have congruent angles.
- Their sides are proportional

- Triangles have special similarity shortcuts

- AA- “Angle-Angle” (SAA,AAS,AAA)
- SSS - “Side-Side-Side”
- SAS - “Side-Angle-Side”



- What would the “Side” part of the short cut mean?

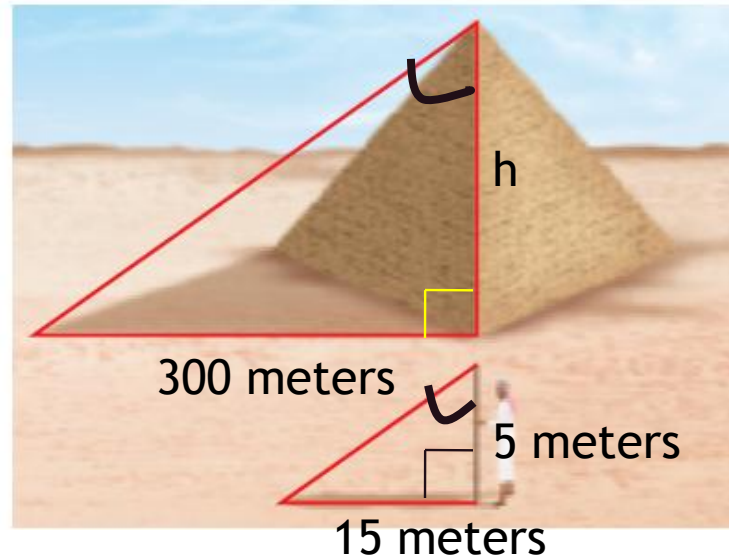
- “Side” would mean that the sides would have the same proportions.

INDIRECT MEASUREMENTS

- ◉ Indirect measurement is a way to find the size of something that is too difficult to measure directly.

▶ GET READY for the Lesson

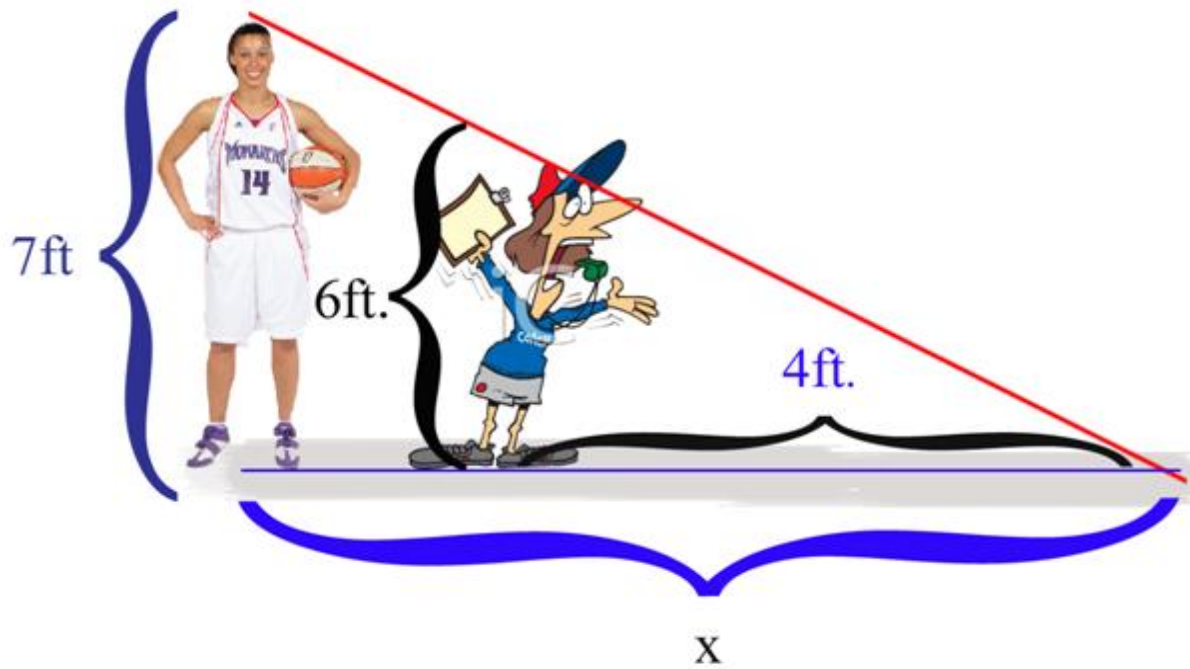
HISTORY Thales is known as the first Greek scientist, engineer, and mathematician. Legend says that he was the first to determine the height of the pyramids in Egypt by examining the shadows made by the Sun. He considered three points: the top of the objects, the lengths of the shadows, and the bases.



- What can you say about the two triangles?
- Can you solve for H ? If so, find the value of H .

WORD PROBLEM

BASKETBALL At 7 feet, Margo Dydek is one of the tallest women to play professional basketball. Her coach, Carolyn Peck, is 6 feet tall. If Ms. Peck casts a shadow that is 4 feet long, about how long would Ms. Dydek's shadow be? Round to the nearest tenth.



INVESTIGATION: MIRROR, MIRROR

Mirror, Mirror

Choose a tall object with a height that would be difficult to measure directly such as a football goalpost, a basketball hoop, a flagpole, or the height of your classroom.

