11.3 Indirect Measurements-Notesheet

Review of Similar Triangles:

- What are the properties of similar triangles?
 - They have congruent angles.
 - <u>Their sides are proportional</u>
- Triangles have special similarity shortcuts
 - AA- "Angle-Angle" (SAA,AAS,AAA)
 - SSS "Side-Side-Side"
 - SAS "Side-Angle-Side"

Indirect Measurements with Similar Triangles:

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

• 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.



The two triangles are similar by angle-angle.

You can solve for "h" by setting up a proportion

$$\frac{h}{300} = \frac{5}{15}$$
$$h = 100 meters$$

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.

Diagram:



Calculations:

$$\frac{x}{7} = \frac{4}{6}$$
$$x = \frac{14}{3} \approx 4.67 \, ft.$$