Name _____ Period_____ Date_____

Using Similar Triangles: Shadow Reckoning

Shadow reckoning was used by the ancient Greeks to measure heights of objects like columns—even the pyramids! This technique used properties of similar triangles: a person would measure his height and the length of his shadow, and then compare it with the length of the shadow cast by the pyramids. We can apply this same principle to other measurement problems.

A flagpole casts a shadow 15 feet long. A 4 foot pole casts a 3 foot shadow (at the same time of day). Use the length of the shadows and the height of the smaller object to solve for the height of the flagpole.
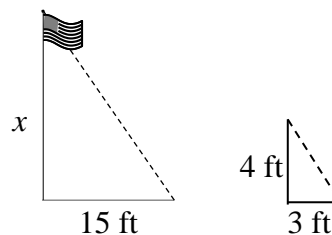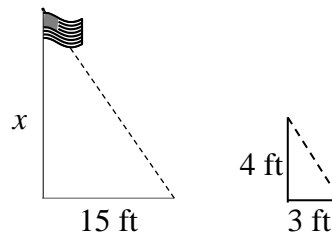
$$\frac{x}{4} = \frac{15}{3}$$
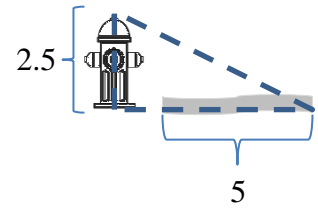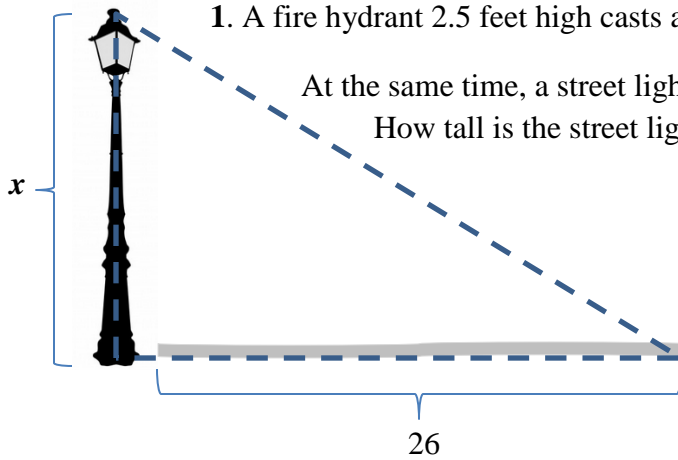
$$3x = 4(15)$$

$$3x = 60$$

$$x = 20$$

The height of the flagpole is 20 feet.

1. A fire hydrant 2.5 feet high casts a 5-foot shadow.

At the same time, a street light casts a 26-foot shadow.
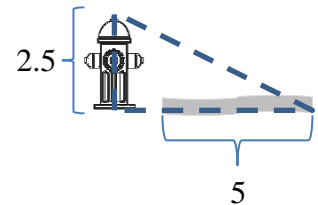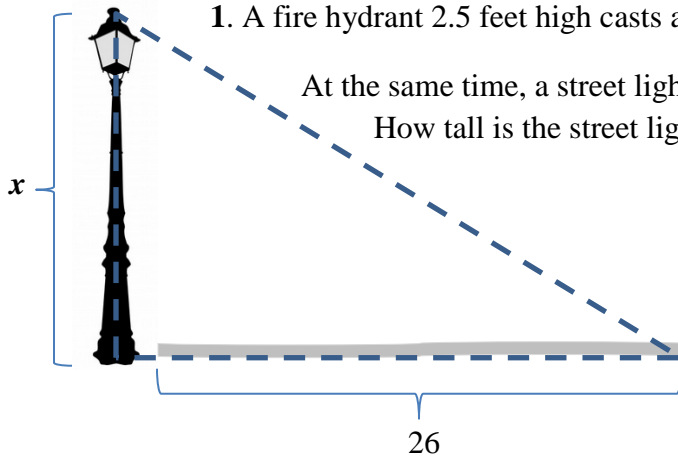How tall is the street light? Show your work.

x

2.5

5

26

2.   At the same time a 2-meter street sign casts a 3-meter shadow, a telephone pole casts a 14.5-meter shadow. How tall is the telephone pole? Make a sketch and show your work.