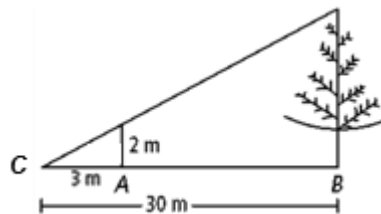


# Question 1

A stick 2 m long is placed vertically at point A. The top of the stick is in line with the top of a tree from the ground at point C, which is 3 m from the stick and 30 m from the tree at point B. **How tall is the tree?**



# Question 2

A 6.5ft tall man stands next to an adult elephant. If the man casts a 33.2ft shadow and the elephant casts a 51.5ft shadow, how tall is the elephant?

**+5 bonus points** for a good drawing of an elephant... Must be done by the writer.

# Question 3

**Architecture** You want to make a scale drawing of New York City's Empire State Building using the scale 1 in. = 250 ft. If the building is 1250 ft tall, how tall should you make the building in your scale drawing?

Write and solve a proportion for full credit!

# Question 4

**Baseball** A baseball team played 154 regular season games. The ratio of the number of games they won to the number of games they lost was  $\frac{5}{2}$ . How many games did they win? How many games did they lose?

# Question 5

Tell whether the following ratios form a proportion:

$$\frac{35}{45} \text{ and } \frac{45}{81}$$

$$\frac{17}{68} \text{ and } \frac{32}{128}$$

$$\frac{65}{105} \text{ and } \frac{156}{252}$$

Be sure to explain why or why not.

# Question 6



1. Find the scale factor from KLMNP to ABCDE.
2. Find the values for  $x$ ,  $y$ , and  $z$ .

You may come get a picture of the two shapes from me for this problem!

# Question 7

Explain how you know two triangles are similar if you are using the shadow method.  
(not nested triangles)

# Question 8

Show why the two triangles below are similar.





# Question 9

Show why the two triangles below are similar.



# Question 10

Find the value of  $x$  that makes  $\triangle RST \sim \triangle HGK$ .



# Question 11

Jenny wants to measure the height of a tree. She sights the top of the tree, using a mirror that is lying flat on the ground. The mirror is 39 ft from the tree, and Jenny is standing 11.7 ft from the mirror, as shown in the figure. Her eyes are 5 ft above the ground. How tall is the tree?

