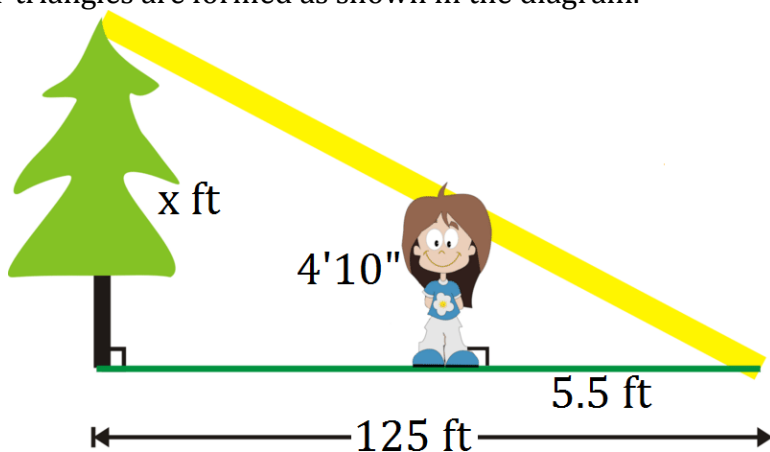


Date: _____

Using Similar Triangles

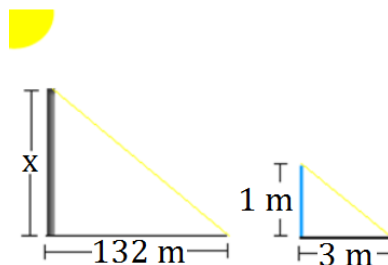
Shadows and Similar Triangles

At any given time of day, the sun's rays meet objects on earth at the same angle, forming shadows. Similar triangles are formed as shown in the diagram.



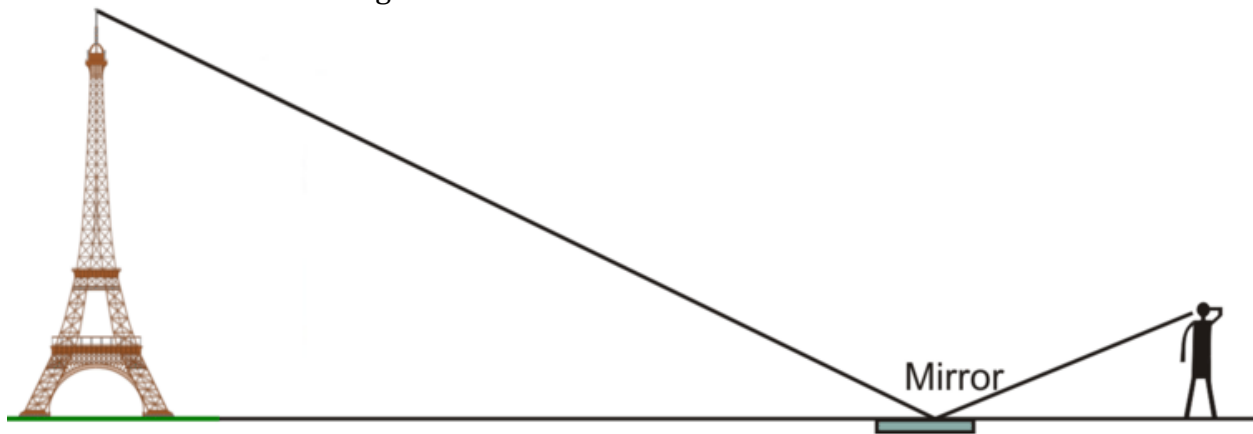
Example 1

Saskatoon's St. John's Anglican Cathedral has the highest church spire in Western Canada. The illustration shown below gives you some of the necessary dimensions to determine the unknown height of the church steeple and spire.



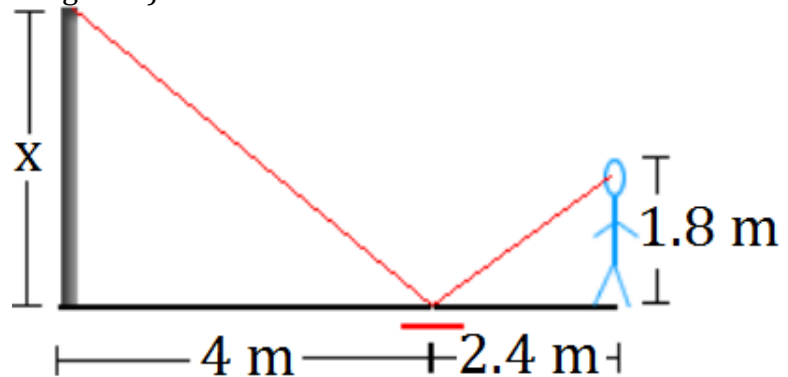
Mirrors, Reflections and Similar Triangles

When you see an image in a mirror, two equal angles are formed. Similar triangles are formed as shown in the diagram.



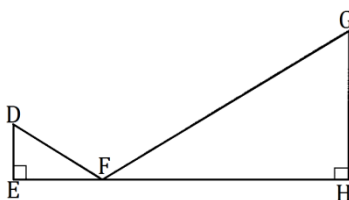
Example 2

This statue can be found in Saskatoon. Use the information below to determine the unknown height of the statue (including base).

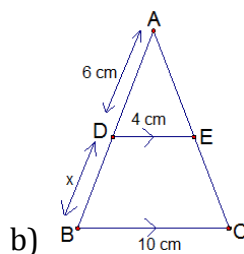
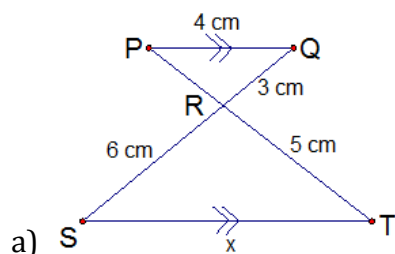


Homework

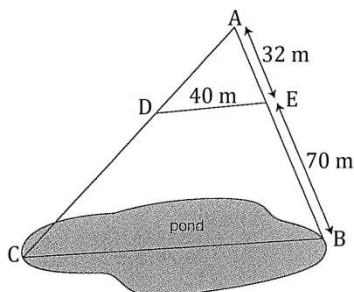
1. Identify the corresponding sides in these similar triangles.



2. The triangles in each pair are similar. Find the unknown side lengths.

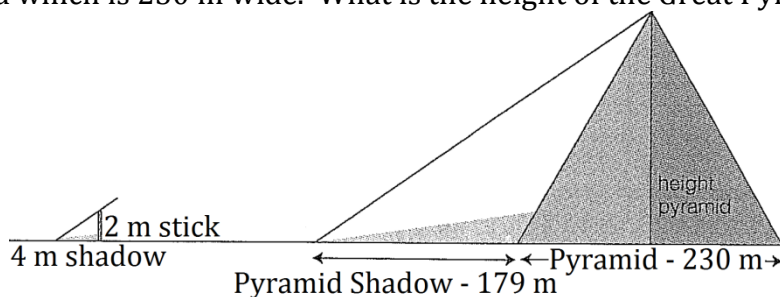


3. Suppose you wish to find the width of this pond. The measurements are given below.



How wide is the pond?

4. On a sunny day in Egypt, a stick is placed vertically so that it stands 2 metres tall and casts a 4 m long shadow. At the same time, the Great Pyramid of Egypt casts a shadow 179 m long from the edge of the pyramid which is 230 m wide. What is the height of the Great Pyramid?



Answers

- DF~GF DE~GH EF~HF
- a) $x = 8$ cm b) $x = 9$ cm
- 127.5 m
- 147 m