6-9   Indirect Measurement

Warm up: If the triangles are similar, solve for *y*:
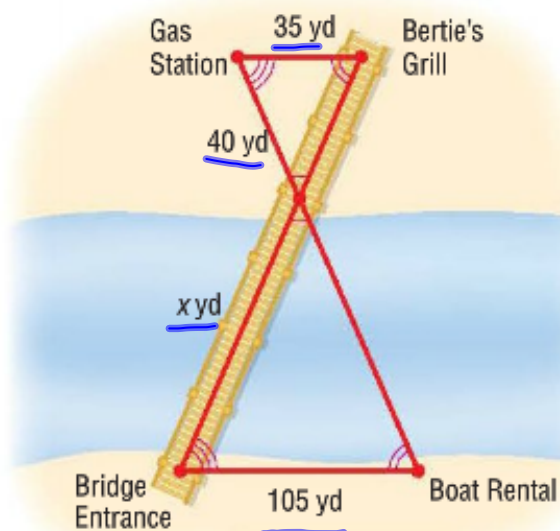
30 ft

12 ft

y ft

8 ft
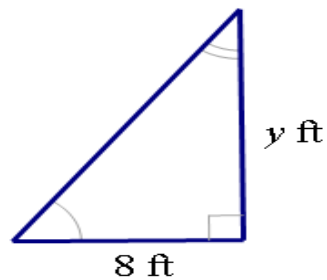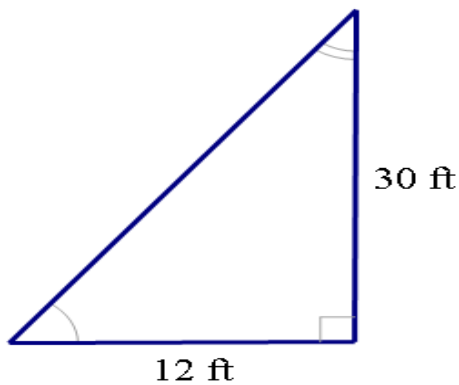
$$\frac{30}{12} = \frac{y}{8}$$

$$y = 20 \text{ ft.}$$

Ex. 1   Solve for *x*.

$$\frac{x}{105} = \frac{40}{35}$$

$$x = 120 \text{ yd}$$
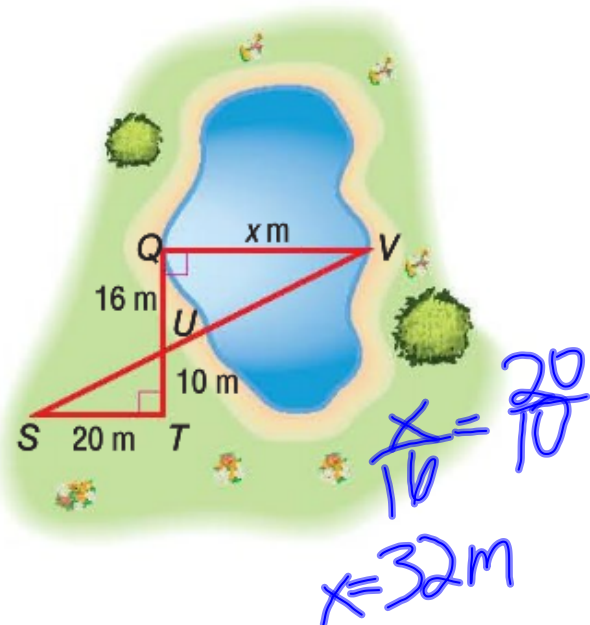
Gas Station   35 yd   Bertie's Grill

40 yd

x yd

Bridge Entrance   105 yd   Boat Rental

Ex 2   Solve for x.

Cabin
Q

Mess
Hall

x yd

46 yd   T

S   138 yd   R

60 yd

U

$$\frac{x}{138} = \frac{60}{46}$$

$$180 \text{ yd}$$

Ex 3   Solve for x.

x m

Q   V

16 m
U

10 m

S   20 m   T

$$\frac{x}{16} = \frac{20}{10}$$
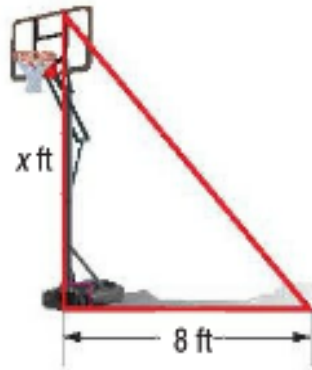
$$x = 32m$$
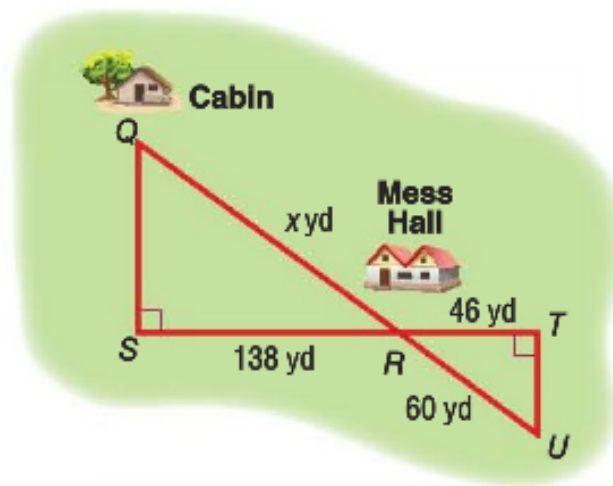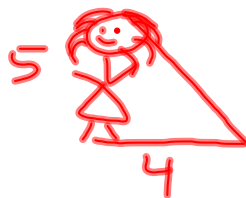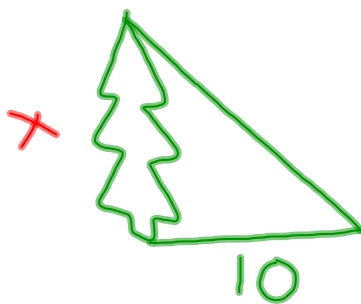
Ex. 4   A basketball hoop in Miguel's backyard casts a
               shadow that is 8 feet long. At the same time,
               Miguel casts a shadow that is 4.5 feet long. If
               Miguel is 5.5 feet tall, how tall is the
               basketball hoop?

$$\frac{x}{8} = \frac{5.5}{4.5}$$

$$x = 9.7 ft$$

x ft

5.5 ft
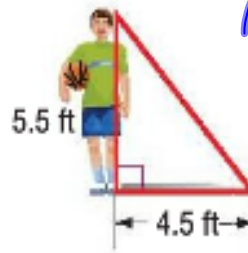
8 ft   4.5 ft

Ex. 5   A tree casts a shadow 10 feet long. A 5 foot tall woman
          casts a shadow 4 feet long. How tall is the tree?

$$\frac{x}{10} = \frac{5}{4}$$

$$x = 12.5 ft.$$

x

5

10

4

Ex. 6   The statue of the Korean War Memorial in Washington
DC casts a 43.5 inch shadow at the same time a nearby
tourist casts a 32 inch shadow. If the tourist is 64 inches
tall, how tall is the statue?

$$\frac{x}{43.5} = \frac{64}{32}$$

$$x = 87 \text{ in}$$

Ex 7   A tower casts a 27.6 foot long shadow at the same
time a person casts a 1.2 foot long shadow. If the
person is 6 feet tall, how tall is the tower?

$$\frac{x}{27.6} = \frac{6}{1.2}$$

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Homework:
pp. 314-315 #1-6