4. Calculate the side length, in units, in each proportion.

a) $\dfrac{AB}{8} = \dfrac{3}{2}$
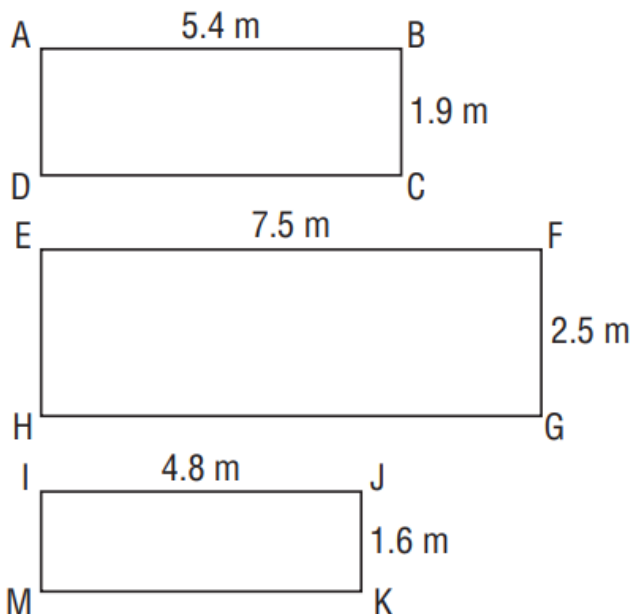
b) $\dfrac{BC}{25} = \dfrac{12}{15}$

c) $\dfrac{CD}{4} = \dfrac{63}{28}$

d) $\dfrac{DE}{7} = \dfrac{24}{30}$
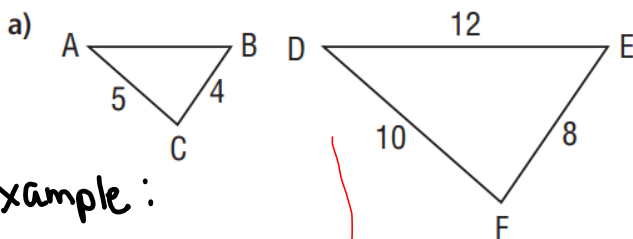
9. Are any of these rectangles similar? Justify your answer.

A ———— 5.4 m ———— B

1.9 m

D · C

E ———— 7.5 m ———— F

2.5 m

H · G

I —— 4.8 m —— J

1.6 m

M · K

13. A rectangular door has height 200 cm and width 75 cm. It is similar to a door in a doll's house. The height of the doll's house door is 25 cm.

  a) Sketch and label both doors.

  b) Calculate the width of the doll's house door.

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6. Determine the length of AB in each pair of similar triangles.

a)

A ———— B D ———— 12 ———— E
5 4
C

10   8

F
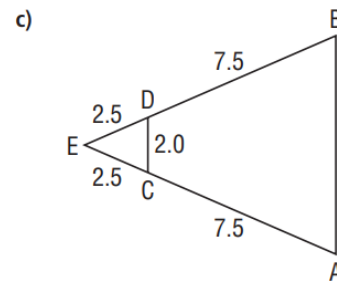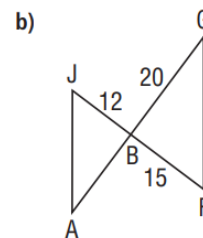
Example:

$$\frac{AB}{DE} = \frac{CB}{FE}$$

$$\frac{AB}{12} = \frac{4}{8}$$

$4 \times 12 \div 8 = 6$

$AB = 6$

b)

J 20 G
12
B
15
A   F

c)

B
7.5
2.5 D
E   2.0
2.5 C
7.5
A

Similarity Practice

7. Jaquie is 1.6 m tall. When her shadow is 2.0 m long, the shadow of the school's flagpole is 16 m long. How tall is the flagpole, to the nearest tenth of a metre?

Sun's rays

Sun's rays

1.6 m

16 m   2.0 m
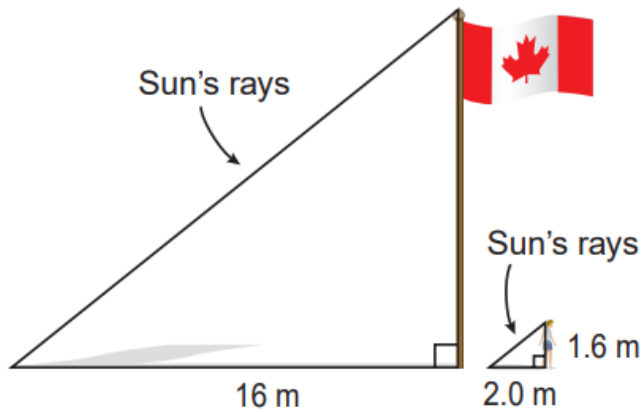
9. Tina wants to estimate the heights of two trees. For each tree, she stands so that one end of her shadow coincides with one end of the shadow of the tree. Tina's friend measures the lengths of her shadow and the tree's shadow. Tina is 1.7 m tall.

Sun's rays

1.7 m
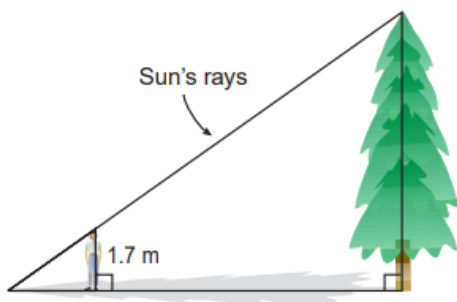
a) Tina's shadow is 2.4 m and the first tree's shadow is 10.8 m. What is the height of the tree?

b) Tina's shadow is 0.8 m and the second tree's shadow is 12.8 m. What is the height of the tree?

10. When the shadow of a building is 16 m long, a 4-m fence post casts a shadow 3 m long.
   a) Sketch a diagram.
   b) How tall is the building?

11. This scale diagram shows the measurements a surveyor made to determine the length of Lac Lalune. What is this length? How do you know?

40 m

30 m

140 m

Lac Lalune