**CHECKPOINT**

## Can you ...

- Find the scale factor for a scale diagram?
- Use a scale factor to determine a length?
- Identify similar polygons and triangles?
- Use similar polygons and triangles to determine a length?

**7.1** **1.** Find the scale factor for this scale diagram.

The actual diameter of the head of the pushpin is 6 mm.

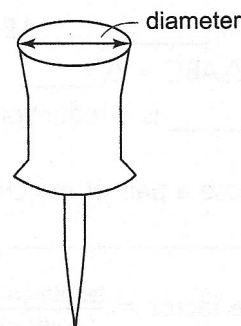Measure the diameter of the pushpin in the diagram.

Length = _____ cm, or _____ mm

Scale factor = $\dfrac{\text{length on scale diagram}}{\text{length of pushpin}}$

= $\dfrac{\rule{2cm}{0.4pt}}{\rule{2cm}{0.4pt}}$

= \_\_\_\_\_

The scale factor is \_\_\_\_\_ .

**2.** A baby picture is to be enlarged.

The dimensions of the photo are 5 cm by 7 cm.

Find the dimensions of the enlargement with a scale factor of 3.2.

Length of original photo: _____

Length of enlargement: 3.2 × _____ = _____

Width of original photo: _____

Width of enlargement: _____ × _____ = _____

The enlargement has dimensions _____ .

**7.2** **3.** Find the scale factor for this reduction.

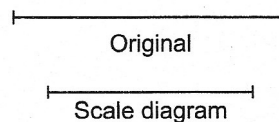Length of original line segment: _____ cm

Length of reduction: _____ cm

Scale factor = $\dfrac{\text{length on reduction}}{\text{length on original diagram}}$

= $\dfrac{\rule{2cm}{0.4pt}}{\rule{2cm}{0.4pt}}$

= \_\_\_\_\_

The scale factor is \_\_\_\_\_ .

**4.** A reduction of a lacrosse stick is to be drawn with a scale factor of $\frac{7}{50}$.
The lacrosse stick has length 100 cm.
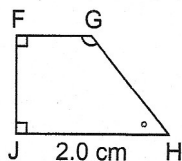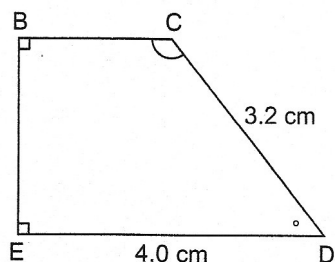Find the length of the reduction.

Write the scale factor as a decimal.
$\frac{7}{50} =$ _____
Length of lacrosse stick: _____
Length of reduction: _____ × _____ = _____
The reduction has length _____.

**7.3** **5.** These two quadrilaterals are similar.
Find the length of GH.



Quadrilateral FGHJ is a _____ of quadrilateral BCDE.
To find the scale factor, choose a pair of matching sides
whose lengths are both known:

_____

Scale factor $= \dfrac{\text{length on} \underline{\qquad}}{\text{length on original}}$

$= \dfrac{\rule{3cm}{0.4pt}}{\rule{2cm}{0.4pt}}$

$= \underline{\qquad}$

The scale factor is _____.
Use the scale factor to find the length of GH.
GH and _____ are matching sides.
Length of _____: _____
Scale factor: _____
Length of GH: _____
So, GH has length _____.

**6.** Are these 2 triangles similar?

5.0 cm

P    Q

L

6.8 cm

4.5 cm

3.6 cm

8.5 cm

K    4.0 cm    M

N
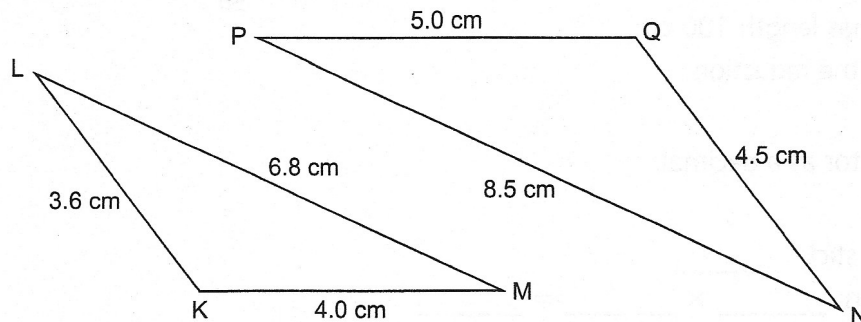
Find out if matching sides are proportional.

In △KLM, order the sides from shortest to longest: _____

In △NPQ, order the sides from shortest to longest: _____

Find the scale factors of matching sides.

$\dfrac{\text{length of} \rule{2cm}{0.4pt}}{\text{length of} \rule{2cm}{0.4pt}} = \dfrac{\rule{2.5cm}{0.4pt}}{\rule{2.5cm}{0.4pt}} = \rule{1.5cm}{0.4pt}$

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All scale factors are _____. So, the triangles _____.

The two shorter sides meet at vertices:          ____ and ____

The longest and shortest sides meet at vertices:          ____ and ____

The two longer sides meet at vertices:          ____ and ____

So, △KLM ~ △_____

**7.** At a certain time of day, a street light and
a stop sign cast shadows.
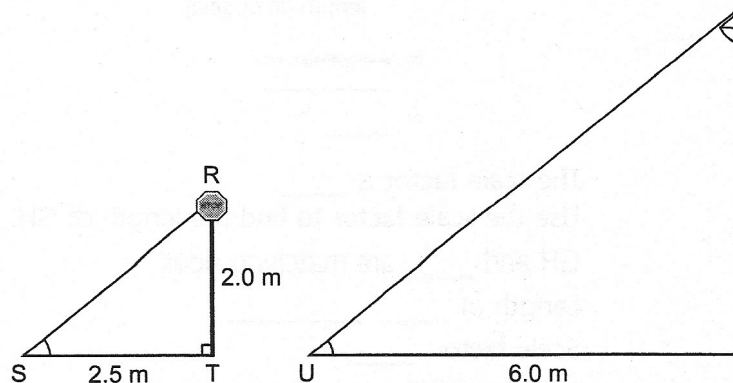Find the height of the street light.

Matching angles are _____.

So, △RST ~ △_____

△_____ is an enlargement of

△_____.

Use sides _____ and

_____ to find the scale factor.

R

2.0 m

S    2.5 m    T    U    6.0 m

$\dfrac{\text{length on enlargement}}{\text{length on original}} = \dfrac{\rule{2.5cm}{0.4pt}}{\rule{2.5cm}{0.4pt}}$

$= \rule{1cm}{0.4pt}$

The scale factor is ____.

Use the scale factor to find the height of the street light, VW.

VW and ____ are matching sides.

Length of ____ : _____          Scale factor: ____

Length of VW: _____

So, the height of the street light is _____.