

**Practise**

For help with #1 and #2, refer to Example 1 on page 47.

1. State whether each scale is a scale reduction or an enlargement. Explain how you know.

- a) 27 : 1                      b) 1 : 27  
c) 1 : 1.5                      d) 10 000 : 1

2. Determine the scale in each case and state whether the scale indicates a reduction or an enlargement.

	Measurement on Model	Actual Measurement
a)	0.5 cm	1 m
b)	720 mm	36 cm
c)	1 cm	0.1 mm
d)	5 cm	5 cm

For help with #3 and #4, refer to Example 2 on page 48.

3. Calculate the actual length given the scale and the length on a scale model.

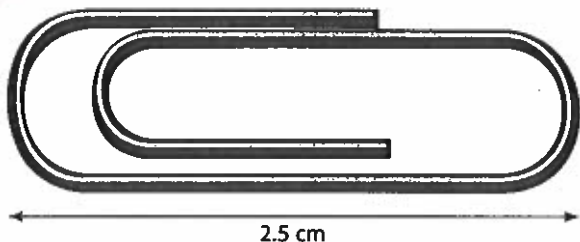
- a) 2 cm on a 1 : 72 model  
b) 1.5 cm on a 1 : 24 reduction  
c) 1 cm on a 100 : 1 enlargement  
d) 1 mm on a 25 : 1 enlargement

4. Calculate the actual size given the scale and the length on a scale model. Give your answers in the stated units.

- a) 1.5 cm on a 1 : 150 000 map, in metres  
b) 3.6 cm on a 1 : 28 scale model, in millimetres  
c) 0.45 mm on a 50 000 : 1 microscope enlargement, in millimetres  
d) 25 cm on a 10 : 1 photo enlargement, in millimetres

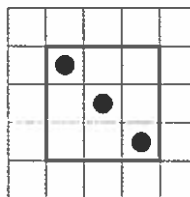
**Apply**

5. A paper clip is 2.5 cm long. Determine the scale of this drawing of the paper clip.



6. a) Measure the length and the width of this book, to the nearest centimetre. On centimetre grid paper, make a 1 : 2 scale reduction of the front cover.  
b) On the same paper, make a 1 : 4 reduction.

7. The sketch shows the number three on a die. Create a 3 : 1 enlargement.



8. Research the average length of a housefly. Determine the scale of the photo.

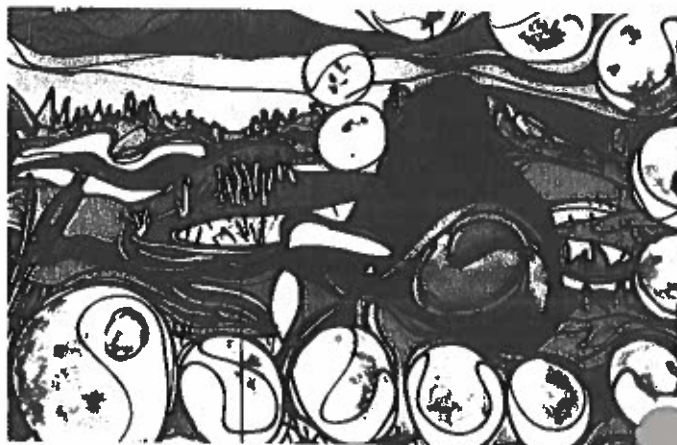


**9. ✓ Competency Check**

- Estimate the scale of this picture of a bowl. Is it an enlargement or a reduction?
- Explain what a 1 : 1 scale means.
- Creative advertisers can enlarge the size of items so that they look bigger or reduce them so they look smaller. The fruit in this picture have been reduced by a factor of 1.5. Why might an advertiser choose to enlarge or reduce the size of some items?

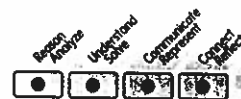
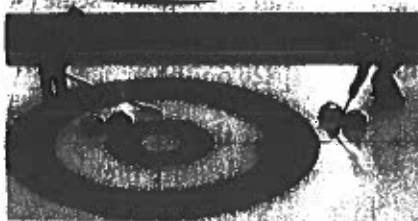


- 10.** The *All My Relations* mural in Allan Gardens, Toronto, was installed in 2012 to beautify temporary fencing around a construction site. The mural gave the Aboriginal people the opportunity to tell their story in four sections dedicated to community, water, traditional teachings, and the history of the land. The entire mural was about 274 metres long. The photo shows one section. Determine the scale of the photo.



**Extend**

- 11. ✓ Competency Check** Measurements in the sport of curling are in feet, not metres. The diameter of the rings is 4 feet, 8 feet, and 12 feet.



- Make a scale reduction of the curling rings. Indicate the scale on your drawing.
- Research the conversion factor between centimetres and feet. Convert the diameter of the curling rings to SI units.

- 12. ✓ Competency Check** Research the dimensions of the standard Canadian flag. Research the ratio of the red : white : red bands. Draw a scale reduction of the flag. Keep the ratios of the flag intact. Indicate the scale on your drawing. Note: The maple leaf only needs to be approximately to scale, but the rest of your diagram should be very accurate.



- Discuss the width to height ratio of the flag.
- Discuss the red : white : red band width ratio of the flag.