

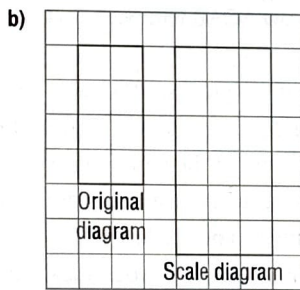
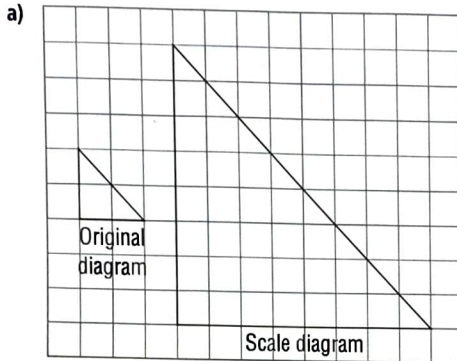
Novice: #4, 5abc, 6ab, 11a

Apprentice/Expert: #4, 5, 6cd, 7, 11ab

**Practice**

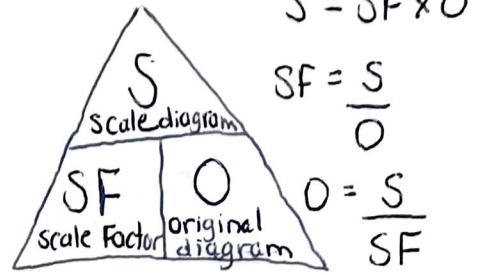
**Check**

4. Determine the scale factor for each scale diagram.



5. Scale diagrams of different squares are to be drawn. The side length of each original square and the scale factor are given. Determine the side length of each scale diagram.

	Side length of original square	Scale factor
a)	12 cm	3
b)	82 mm	$\frac{5}{2}$
c)	1.55 cm	4.2
d)	45 mm	3.8
e)	0.8 cm	12.5

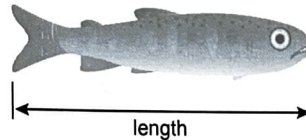


**Apply**

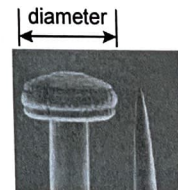
6. A photo of a surfboard has dimensions 17.5 cm by 12.5 cm. Enlargements are to be made with each scale factor below. Determine the dimensions of each enlargement. Round the answers to the nearest centimetre.

- a) scale factor 12      b) scale factor 20  
 c) scale factor  $\frac{7}{2}$       d) scale factor  $\frac{17}{4}$

7. Here is a scale diagram of a salmon fry. The actual length of the salmon fry is 30 mm. Measure the length on the diagram to the nearest millimetre. Determine the scale factor for the scale diagram.



8. The head of a pin has diameter 2 mm. Determine the scale factor of this photo of the pinhead.



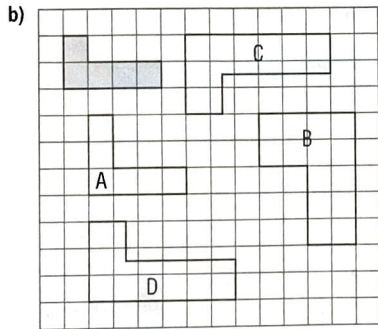
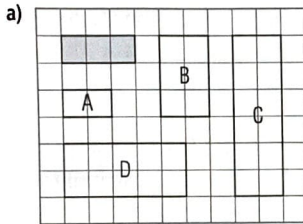
9. This view of the head of a bolt has the shape of a regular hexagon. Each angle is  $120^\circ$ . Use a protractor and ruler to draw a scale diagram of the bolt with scale factor 2.5.



10. Draw your initials on 0.5-cm grid paper. Use different-sized grid paper to draw two different scale diagrams of your initials. For each scale diagram, state the scale factor.

11. **Assessment Focus** For each set of diagrams below, identify which of diagrams A, B, C, and D are scale diagrams of the shaded shape. For each scale diagram you identify:

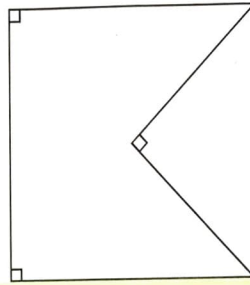
- State the scale factor.
- ~~Explain how it is a scale diagram.~~



12. One frame of a film in a projector is about 50 mm high. The film is projected onto a giant screen. The image of the film frame is 16 m high.
- What is the scale factor of this enlargement?
  - A penguin is 35 mm high on the film. How high is the penguin on the screen?

13. Look in a newspaper, magazine, or on the Internet. Find an example of a scale diagram that is an enlargement and has its scale factor given. What does the scale factor indicate about the original diagram or object?

14. Draw a scale diagram of the shape below with scale factor 2.5.



### Answer Key

④ a) 4 b) 1.5

⑤ a) 36 cm b) 205 mm  
c) 6.51 cm d) 171 mm  
e) 10 cm

⑥ a) 210 cm by 150 cm  
b) 350 cm by 250 cm  
c) 61 cm by 44 cm  
d) 74 cm by 53 cm

⑦ About 1.6

⑧ a) Diagram C  
i) scale factor is 2

b) Diagrams C and D  
i) The scale factor for both is 1.5.

### Reflect

Suppose you are given a scale diagram. Why is it important to know the scale factor?