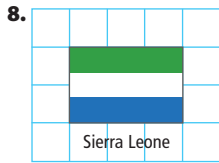


7. **a)** greater than 1 **b)** equal to 1 **c)** less than 1



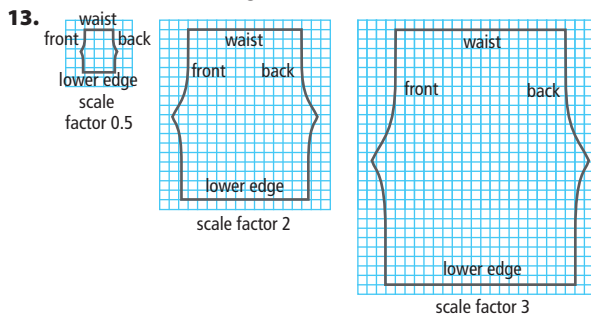
9. **a)** enlargement **b)** 100. The lens makes all dimensions of the original image appear to be enlarged by 100 times.

10. Examine the font used in both posters. Mia's font is 0.5 cm high, and Hassan's is 0.25 cm high. Mia's font is twice the height of Hassan's, so the scale factor is 2.

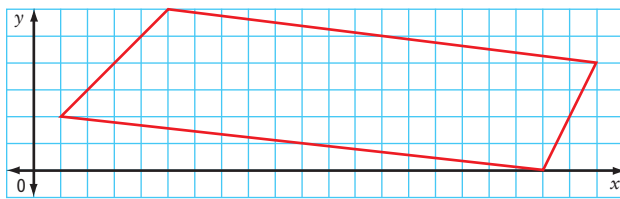
11. Example: Measure the width of the sunglasses in both images. Determine the scale factor. Then, see if the scale factor applies to another pair of corresponding parts (e.g. the width of the mouth).

12. **a)** width = 27 cm, length = 54 cm

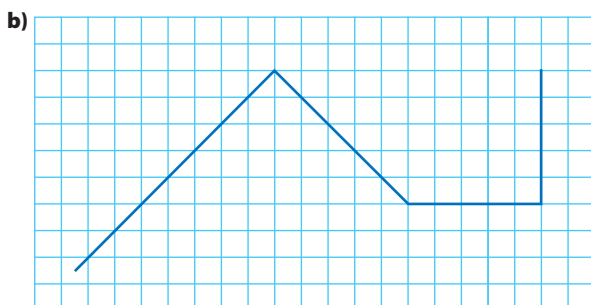
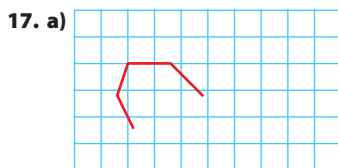
b) width = 4.5 cm, length = 9 cm



14.



15. Example: You could reduce the image with a scale factor of $\frac{1}{4}$. Then, width = 10.5 cm, height = 7.5 cm, depth = 2.5 cm



4.2 Scale Diagrams, pages 143–145

4. **a)** Divide 144 by 3. **b)** Divide 117 by 5.2.

5. **a)** 13 **b)** 126

6. **a)** 1210 cm or 12.1 m **b)** 16 mm

7. **a)** 38.9 m **b)** 14 m

8. **a)** 0.15 **b)** 1.68

9. **a)** 0.02 **b)** 0.5

10. 0.02

11. 0.04

12. $\frac{1}{16\,000\,000}$

13. **a)** 6.3 cm **b)** Yes, an actual egg could have a length of approximately 6.3 cm.

14. **a)** $\frac{1}{15}$ **b)** The length of the footprint image is approximately 3.4 cm. With the scale factor of $\frac{1}{15}$,

the actual length of the footprint is approximately 51 cm. **c)** Example: The span of a human hand to the footprint could be approximately 1:2.1. The footprint is approximately 2 times as large as a human hand span.

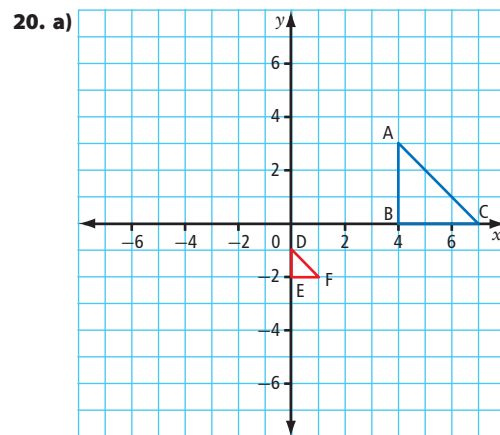
15. 50 000

16. Yes, it will fit. The model will measure 2.5 m in height, giving it a 0.5 m clearance.

17. length = 17.4 m, height = 4.35 m

18. **a)** 2 **b)** 3 **c)** 1.5 **d)** $\frac{1}{3}$ **e)** $\frac{2}{3}$

19. **a)** $\frac{1}{1800}$ **b)** 2700 cm or 27 m



b) Yes, the sides of the larger triangle are 3 times the length of the sides of the smaller triangle. **c)** $\frac{1}{3}$ **d)** 3

e) Area of $\triangle ABC$ is 4.5 square units; area of $\triangle DEF$ is 0.5 square units. **f)** 1:0.1; 1:9 **g)** The scale factor of the area is 3 times larger than the scale factor of the sides (when comparing $\triangle DEF:\triangle ABC$)

21. **a)** 2.6 m **b)** 5.2 m

22. **a)** 2.5, $\frac{2}{5}$ **b)** Example: Scale factors between a smaller object and a larger one are often easier to use.