

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.

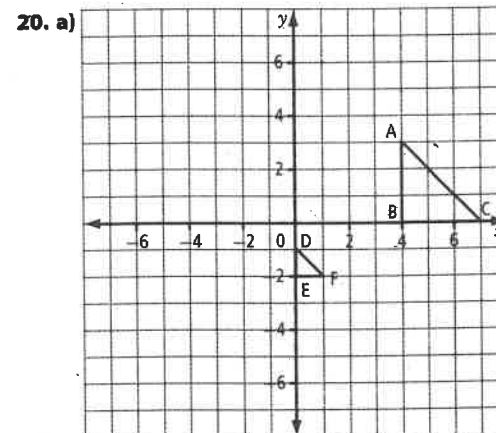
15. 50 000

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.