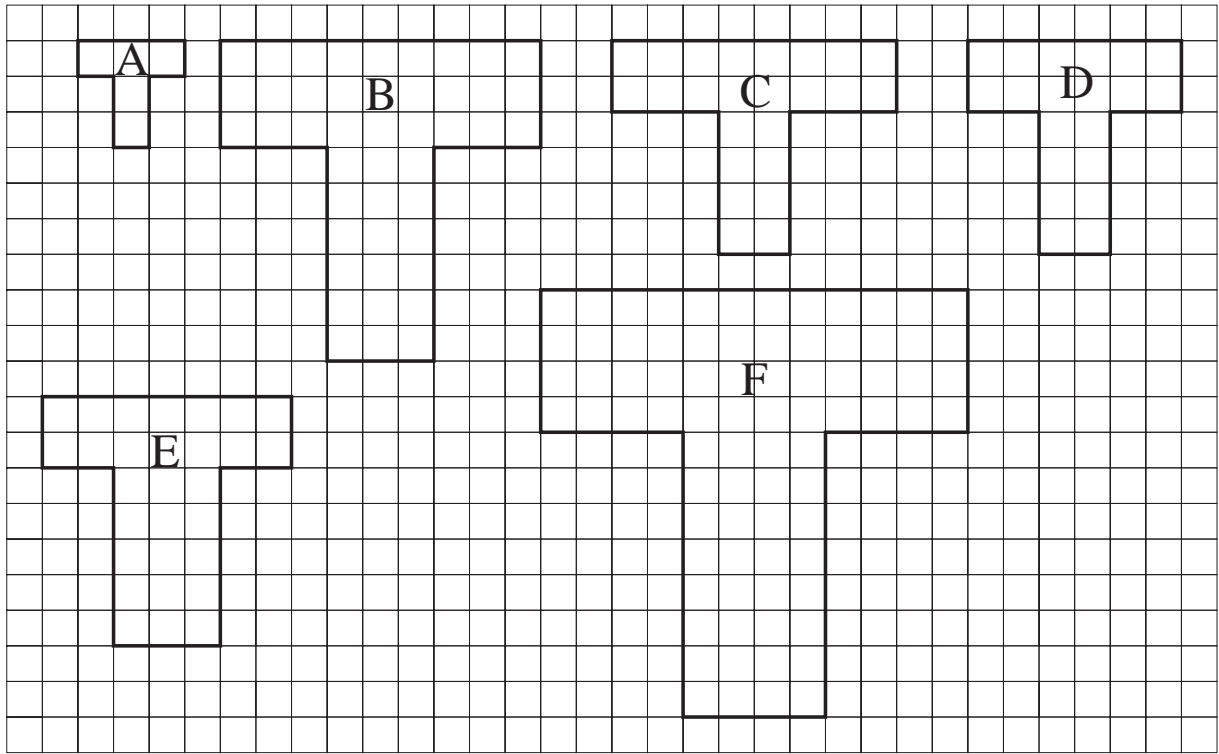


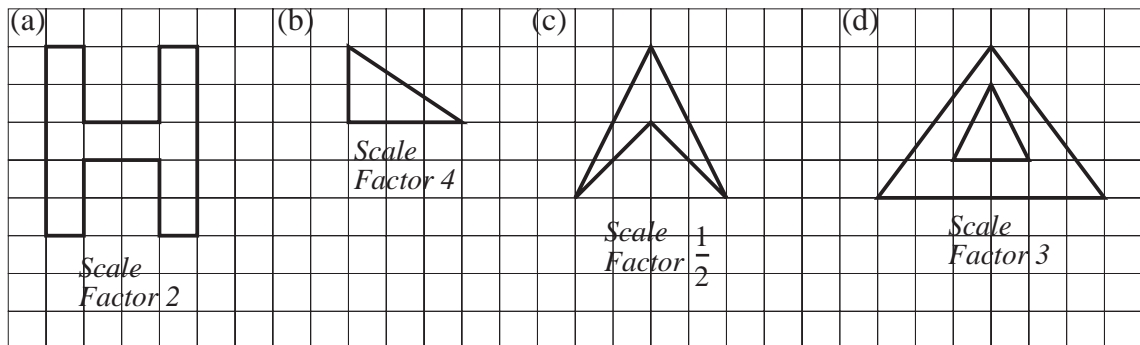
UNIT 19 Similarity

Extra Exercises 19.1

1. Which of the shapes below are enlargements of the shape A?
 State the scale factor for each shape that is an enlargement.



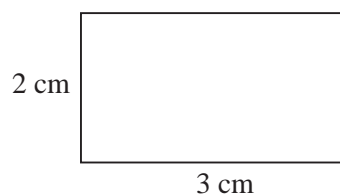
2. Enlarge each of the following shapes with the scale factor stated:



UNIT 19 *Similarity***Extra Exercises 19.3**

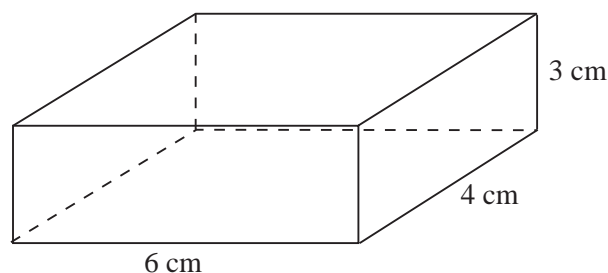
1. Calculate the area of the rectangle shown, if it is enlarged with a scale factor of:

- (a) 2 (b) 4
(c) 5 (d) 8



2. A triangle has an area of 18 cm^2 . The triangle is enlarged with a scale factor of 3. What is the area of the enlarged triangle?
3. A parallelogram has an area of 5 cm^2 . It is enlarged with a scale factor of 10. What is the area of the enlarged parallelogram?
4. After an enlargement, the area of a shape has increased from 6 cm^2 to 54 cm^2 . What was the scale factor of the enlargement?

5. (a) Calculate the volume of the cuboid shown.
(c) Calculate the volume of the cuboid if it is enlarged with scale factor 2.



6. A bottle has a volume of 300 ml. Calculate the volume of the bottle if it is enlarged with scale factor:
(a) 2 (b) 6 (c) 10

UNIT 19 *Similarity***Extra Exercises 19.4**

- A model house is made to a scale of 1 : 800. The model has height 7 cm. The volume of the model is 140 cm^3 .

Calculate:

 - the *height* of the actual house,
 - the *volume* of the actual house.
- A map has a scale of 1 : 20 000. On the map a farm has an area of 40 cm^2 . Calculate the actual area of the farm in:

 - cm^2
 - m^2
 - km^2
- A map has a scale of 1 : 2500. The area of a garden is 8 cm^2 on the map. Calculate the actual area of the garden in m^2 .
- A model aeroplane is made to a scale of 1 : 40. The length of the model is 30 cm. The surface area of one wing of the model is 200 cm^2 . The volume of the model is 1200 cm^3 .

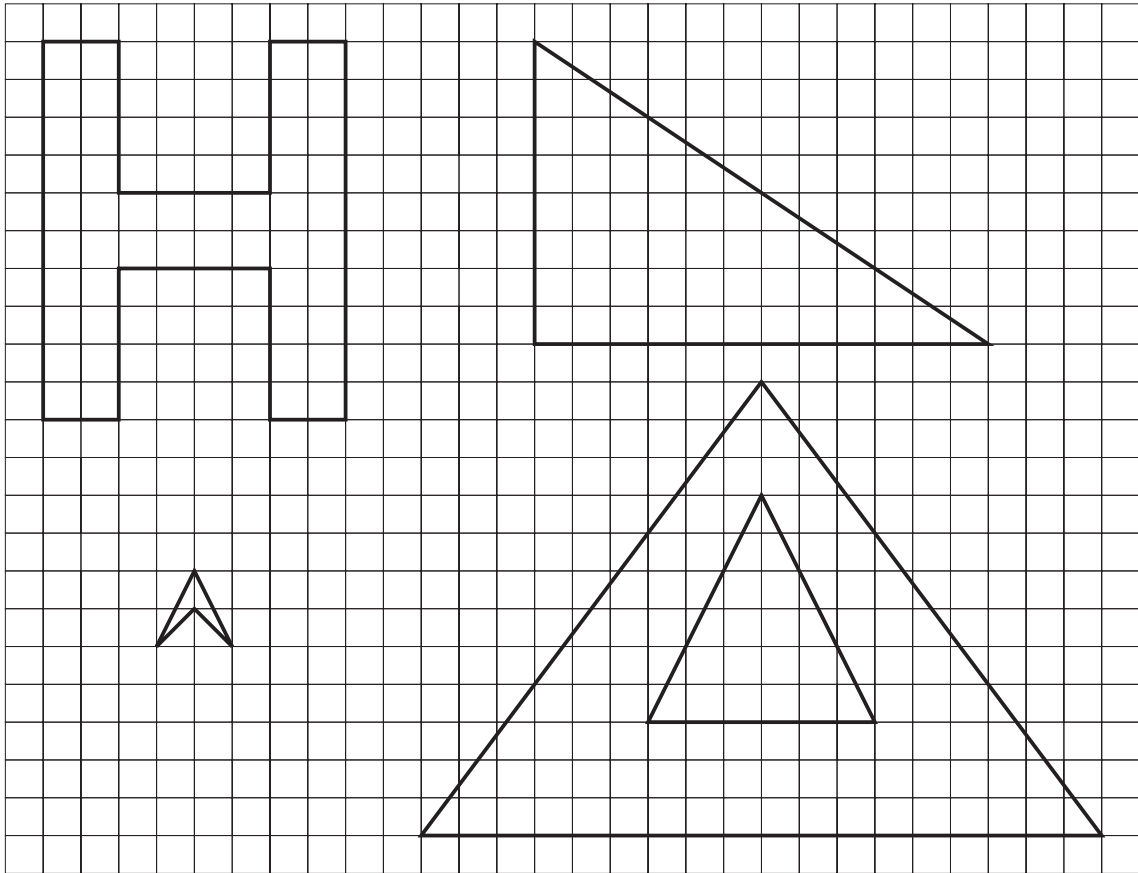
Calculate:

 - the length of the aeroplane,
 - the area of a wing of the aeroplane,
 - the volume of the aeroplane.
- A forest has an area of 400 km^2 . Calculate the area of the forest in cm^2 on a map with a scale of 1 : 50 000.

Extra Exercises 19.1 Answers

1. B ($\times 3$), D ($\times 2$), F ($\times 4$)

2.



Extra Exercises 19.2 Answers

1. (a) 9 cm (b) 6 cm

2. (a) 2 cm (b) 3 cm (c) $\frac{1}{2}$ cm

3. $AB = 4\frac{1}{2}$ cm, $CD = 5$ cm

Extra Exercises 19.3 Answers

1. (a) 24 cm^2 (b) 96 cm^2 (c) 150 cm^2 (d) 384 cm^2
2. 162 cm^2
3. 500 cm^2
4. 3
5. (a) 72 cm^3 (b) 576 cm^3
6. (a) 2400 cm^3 (b) $64\,800 \text{ cm}^3$ (c) $300\,000 \text{ ml}$

Extra Exercises 19.4 Answers

1. (a) 5600 cm or 5.6 m (b) $71\,680\,000\,000 \text{ cm}^3$ or $71\,680 \text{ m}^3$
2. (a) $16\,000\,000\,000 \text{ cm}^2$ (b) $1\,600\,000 \text{ m}^2$ (c) 1.6 km^2
3. 5000 m^2
4. (a) 1200 cm (b) $320\,000 \text{ cm}^2 = 32 \text{ m}^2$
(c) $76\,800\,000 \text{ cm}^3$
5. 1600 cm^2