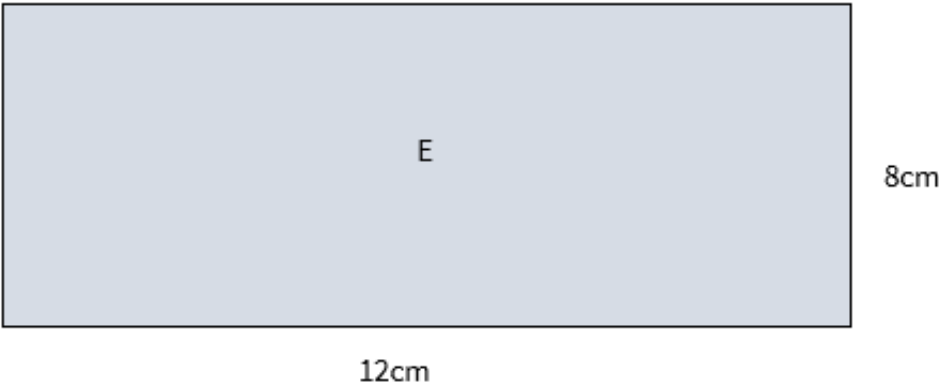
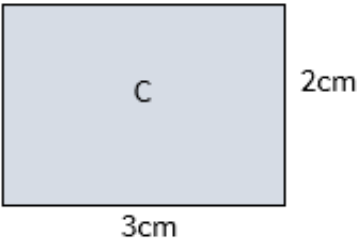
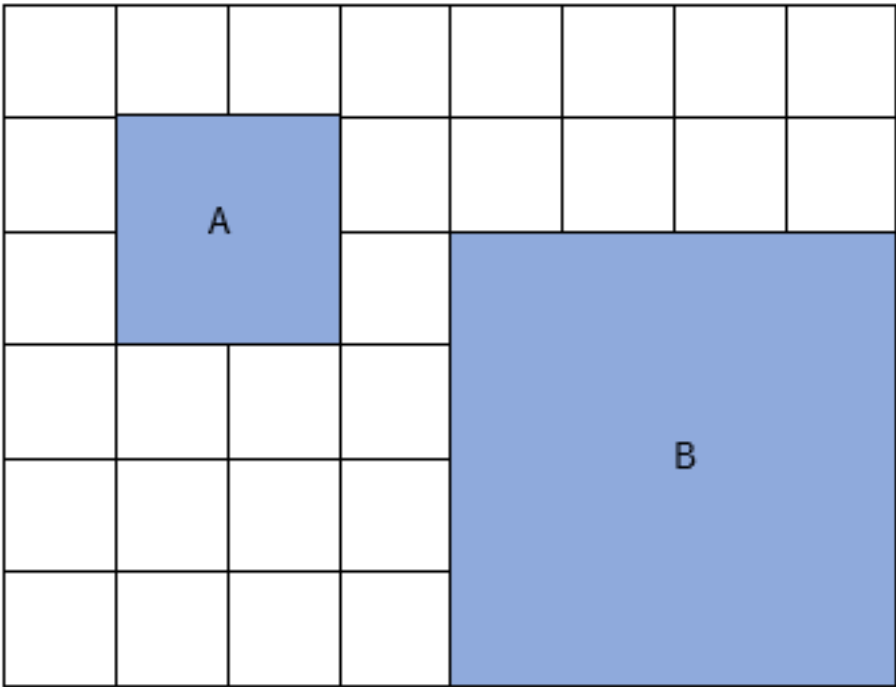


Shapes



Arithmetic

1. $\frac{3}{8} \times \frac{1}{9}$

2. $9 - 7.02$

3. 13×4.5

4. $2 \text{ and } \frac{2}{3} \times 3$

Practice: Calculating Scale Factors

5. Recap: Explain how to calculate a scale factor of an enlarged shape.



6. Complete the sentences.

Shape B is ? times as big as shape A.
Shape A has been enlarged by scale factor ?.

7. Look at the three rectangles. The scale factor of enlargement for each set of shapes is:

a. C to D b. D to E c. C to E

8. Look at the three rectangles. The scale factor of enlargement for each set of shapes is:

a. D to C b. E to D c. E to C

9. A square has been enlarged by scale factor 3. One of its sides now measures 15cm.
What did it measure before?

10. Explain what 'similar' means in mathematics.



11. A triangle has 3 sides measuring 7cm, 8cm and 9cm. It's enlarged by scale factor 5.
What do the sides measure now?

12. A square has an area of 4cm². It is enlarged by scale factor 3.
What is its new area?

13. A square with sides of 6cm is enlarged to have side of 36cm. Tim says this is a scale factor of 5.
Explain the mistake.



Challenge

14. Draw a triangle. Enlarge it by a scale factor of 3.
Use the new triangle and enlarge it by a scale factor of 5.
Use the new triangle and enlarge it by a scale factor of 1.5.

Label the measures of each new triangle.



You might want
to talk to an adult



Spot the mistake

Answers

| Q no. | Question | Answer |
|-------|--|---|
| 1 | $\frac{3}{8} \times \frac{1}{9}$ | $\frac{3}{72}$ or $\frac{1}{24}$ |
| 2 | $9 - 7.02$ | 1.98 |
| 3 | 13×4.5 | 58.5 |
| 4 | 2 and $\frac{2}{3} \times 3$ | 8 |
| 5 | Explain how to calculate a scale factor of an enlarged shape. | Pupils should find the measures of their original shape and the enlarged shape. From there, they need to calculate how much bigger one shape is compared to the other. This will provide the scale factor. |
| 6 | Complete the sentences | 2, 2 |
| 7 | Calculate the scale factors | a. 2, b. 2, c. 4 |
| 8 | Calculate the scale factors | a. $\frac{1}{2}$, b. $\frac{1}{2}$, c. $\frac{1}{4}$ |
| 9 | What did it measure before? | 5cm |
| 10 | Explain what 'similar' means in mathematics. | 'Similar' means that shapes do not just share common properties, similar means they are exact enlargements. This could be an exact enlargement of a shape or an exact enlargement of a number. |
| 11 | What do the sides measure now? | 35cm, 40cm, 45cm |
| 12 | What is its new area? | 36cm ² |
| 13 | Explain the mistake. | Tim is wrong. He has completed the calculation incorrectly. This answer shows an understanding of how to find a scale factor (in this example, 36cm divided by 6cm). Tim has made a mistake when completing this and found the answer to be 5 instead of 6. It is important that pupils learn to check their answers carefully to avoid mistakes. |
| 14 | <p>Draw a triangle. Enlarge it by a scale factor of 3.</p> <p>Use the new triangle and enlarge it by a scale factor of 5.</p> <p>Use the new triangle and enlarge it by a scale factor of 1.5.</p> <p>Label the measures of each new triangle.</p> | Answers will vary depending on the dimensions of the starting triangle. |