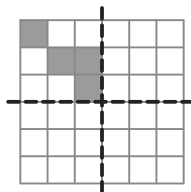


1 Lines of symmetry

- a) Shade more squares so that both dashed lines are lines of symmetry.
- b) Is a diagonal of the grid now a line of symmetry? Explain how you know.



a) 16 squares

b) No: a shaded square reflects onto a blank one

2 Rotational symmetry

- a) Write down the order of rotational symmetry of this shape.
- b) Name a quadrilateral with rotational symmetry of order 2 and no lines of symmetry.

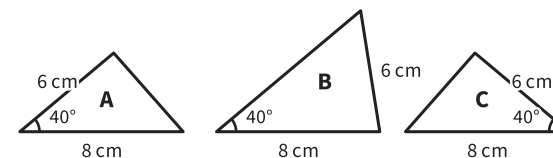


a) it fits onto itself 3 times in a full turn
order 3

b) a parallelogram

3 Congruent triangles

- a) Which two of these triangles are congruent?
- b) Give the condition for congruence.



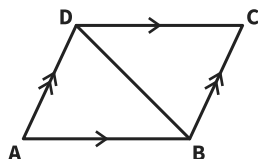
a) A and C: 8 cm, 6 cm and the 40° between them

b) SAS (two sides and the included angle)

4 Congruent triangles

ABCD is a parallelogram.

- a) Prove that triangles ABD and CDB are congruent.
- b) Explain why angle DAB = angle BCD.



a) $AB = CD$, $AD = CB$ (opposite sides), BD common
so congruent (SSS)

b) matching angles of congruent triangles

Congruence, symmetry and similarity

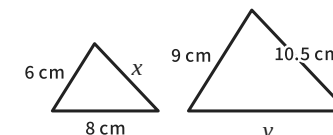
revision mat answers

Higher A

5 Similar shapes: missing lengths

The two triangles are similar.

- a) Find y .
- b) Find x .



Not drawn accurately

scale factor $9 \div 6 = 1.5$

a) $y = 8 \times 1.5 = 12$ cm

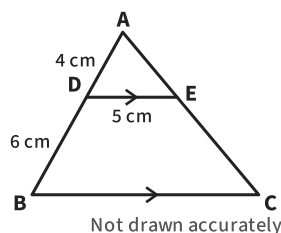
b) $x = 10.5 \div 1.5 = 7$ cm

6 Similar shapes: missing lengths

DE is parallel to BC.

AC = 15 cm.

- a) Work out the length of BC.
- b) Work out the length of EC.



Not drawn accurately

$AB = 10$, scale factor $10 \div 4 = 2.5$

a) $BC = 5 \times 2.5 = 12.5$ cm

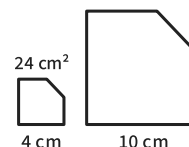
b) $AE = 15 \div 2.5 = 6$, $EC = 15 - 6 = 9$ cm

7 Area and volume scale factors

These shapes are similar.

The small one has an area of 24 cm^2 .

- a) Work out the area of the large one.
- b) A third similar shape has an area of 54 cm^2 . How wide is it?



a) $10 \div 4 = 2.5$, $2.5^2 = 6.25$

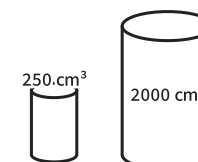
$24 \times 6.25 = 150 \text{ cm}^2$

b) $54 \div 24 = \frac{9}{4}$, $\sqrt{\frac{9}{4}} = 1.5$, $4 \times 1.5 = 6$ cm

8 Area and volume scale factors

Two similar jars hold 250 cm^3 and 2000 cm^3 . The small jar is 12 cm tall.

- a) How tall is the large jar?
- b) The small jar has a surface area of 180 cm^2 . Work out the surface area of the large jar.



a) $2000 \div 250 = 8$, cube root 2

$12 \times 2 = 24$ cm

b) $180 \times 2^2 = 720 \text{ cm}^2$