

Advanced Ratio Problems, Similar Shapes and Scale Factor

Year 10 · Ratio & Proportion · y10-ratio-simplify

Name: _____

Date: _____

Class: _____

Score: ____ / ____

Instructions

Answer every question in Practice. Try the Challenge section once Practice is complete. 10 questions in total.

Practice

1. Two similar rectangles have a length scale factor of 3. The area of the smaller rectangle is 8 cm². Find the area of the larger rectangle.

2. Two similar shapes have a length scale factor of 2. Shape A has an area of 15 cm². Find the area of shape B (the larger shape).

3. Two similar cuboids have a length scale factor of 2. The smaller cuboid has a volume of 20 cm³. Find the volume of the larger cuboid.

4. Two similar triangles have sides in the ratio 3:5. The perimeter of the smaller triangle is 24 cm. Find the perimeter of the larger triangle.

5. A model car is built at a scale of 1:20. The real car is 4 m long. Find the length of the model in cm.

6. When lengths scale by factor k , area scales by k^2 . Two similar shapes have a length scale factor of 4. The smaller shape has area 5 cm². Find the area of the larger shape.

7. When lengths scale by factor k , volume scales by k^3 . Two similar solids have a length scale factor of 3. The smaller solid has volume 10 cm³. Find the volume of the larger solid.

8. In similar shapes, corresponding sides are in the same ratio. Two similar rectangles have corresponding sides 6 cm and 9 cm. If the smaller rectangle has width 4 cm, find the width of the larger rectangle.

Challenge

1. Two similar solids have volumes 27 cm^3 and 216 cm^3 . Find the length scale factor between them.

2. Two similar shapes have areas 16 cm^2 and 144 cm^2 . Find the length scale factor between them.
