

Congruence Conditions and Area/Volume Scale Factors for Similar Shapes

Year 11 · Geometry · y11-geometry

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 shapes have linear scale factor 3. What is the area scale factor? (linear scale factor squared)

2. Two similar solids have linear scale factor 3. What is the volume scale factor? (linear scale factor cubed)

3. Two triangles have all three pairs of corresponding sides equal in length. Which congruence condition proves them congruent: SSS, SAS, ASA, or RHS?

4. Two similar shapes have linear scale factor 2, so area scale factor 4. The smaller shape has area 8cm^2 . What is the area of the larger shape?

5. Two similar solids have linear scale factor 3, so volume scale factor 27. The smaller solid has volume 20cm^3 . What is the volume of the larger solid?

6. RHS congruence requires a right angle, the hypotenuse, and one other side to match. Two right-angled triangles have equal hypotenuses and one equal side. Which congruence condition is this?

7. Area scale factor is the LINEAR scale factor squared, not the linear scale factor itself. Two similar shapes have linear scale factor 5, so area scale factor 25. The smaller shape has area 12cm^2 . What is the area of the larger shape?

8. Area scale factor is found by squaring the linear scale factor: $(\text{linear scale factor})^2$. Two similar shapes have linear scale factor 4. What is the area scale factor?

Challenge

1. Two similar solids have linear scale factor 2, so volume scale factor 8. The larger solid has volume 128cm^3 . What is the volume of the smaller solid? ($128 \div 8$)

2. Two triangles have two pairs of corresponding sides equal and the included angle between them equal. Which congruence condition is this: SSS, SAS, ASA, or RHS?
