
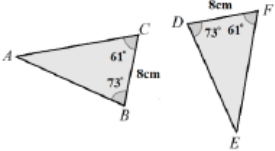

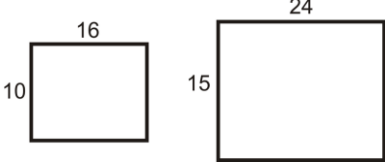
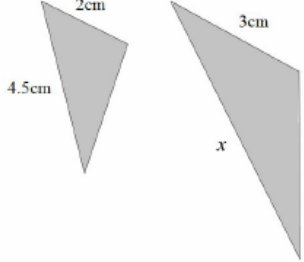
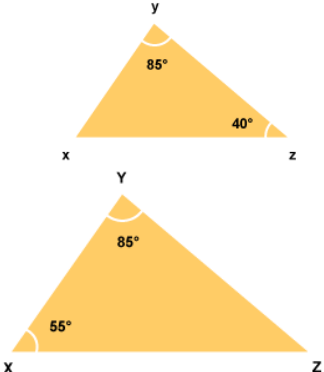


**Core Knowledge**

| Topic/Skill                                  | Definition/Tips   | Example   |
|--|---|---|
| 1. Congruent Shapes                          | Shapes are congruent if they are <b>identical - same shape and same size.</b><br><br>Shapes can be rotated or reflected but still be congruent.   |   |
| 2. Congruent Triangles                       | 4 ways of proving that two triangles are congruent:<br><br>1. <b>SSS</b> (Side, Side, Side)<br>2. <b>RHS</b> (Right angle, Hypotenuse, Side)<br>3. <b>SAS</b> (Side, Angle, Side)<br>4. <b>ASA</b> (Angle, Side, Angle) or <b>AAS</b><br><br><u>ASS does not prove congruency.</u>  |  <p> <math>BC = DF</math><br/> <math>\angle ABC = \angle EDF</math><br/> <math>\angle ACB = \angle EFD</math><br/> <math>\therefore</math> The two triangles are congruent by AAS.                 </p> |
| 3. Similar Shapes                            | Shapes are similar if they are the <b>same shape but different sizes.</b><br><br>The proportion of the matching sides must be the same, meaning the ratios of corresponding sides are all equal.  |   |
| 4. Scale Factor                              | The <b>ratio of corresponding sides</b> of two similar shapes.<br><br>To find a scale factor, <b>divide a length</b> on one shape <b>by the corresponding length</b> on a similar shape.  |  <p>Scale Factor = <math>15 \div 10 = 1.5</math></p>  |
| 5. Finding missing lengths in similar shapes | 1. Find the <b>scale factor</b> .<br>2. <b>Multiply or divide</b> the corresponding side to find a missing length.<br><br>If you are finding a missing length on the larger shape you will need to multiply by the scale factor.<br><br>If you are finding a missing length on the smaller shape you will need to divide by the scale factor. |  <p>Scale Factor = <math>3 \div 2 = 1.5</math><br/> <math>x = 4.5 \times 1.5 = 6.75\text{cm}</math></p>  |
| 6. Similar Triangles                         | To show that two triangles are similar, show that:<br><br>1. The three sides are in the same proportion<br>2. Two sides are in the same proportion, and their included angle is the same<br>3. The three angles are equal   |    |

Links to ratio, area and volume of similar shapes, proof