
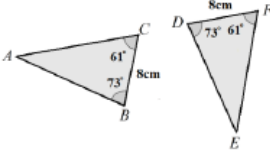

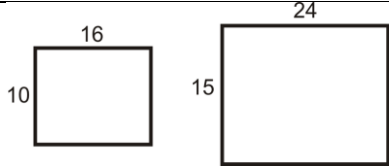
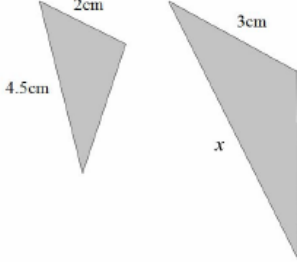
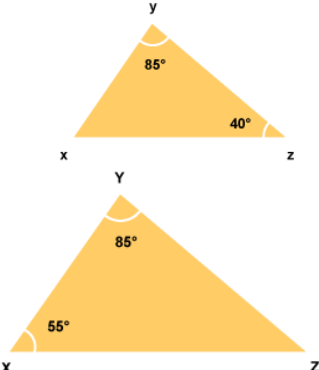


Topic: Congruence and Similarity

| Topic/Skill | Definition/Tips | Example |
|--|--|---|
| 1. Congruent Shapes | <p>Shapes are congruent if they are identical - same shape and same size.</p> <p>Shapes can be rotated or reflected but still be congruent.</p> |  |
| 2. Congruent Triangles | <p>4 ways of proving that two triangles are congruent:</p> <ol style="list-style-type: none"> 1. SSS (Side, Side, Side) 2. RHS (Right angle, Hypotenuse, Side) 3. SAS (Side, Angle, Side) 4. ASA (Angle, Side, Angle) or AAS <p><u>ASS does not prove congruency.</u></p> |  <p style="text-align: center;">$BC = DF$ $\angle ABC = \angle EDF$ $\angle ACB = \angle EFD$ \therefore The two triangles are congruent by AAS.</p> |
| 3. Similar Shapes | <p>Shapes are similar if they are the same shape but different sizes.</p> <p>The proportion of the matching sides must be the same, meaning the ratios of corresponding sides are all equal.</p> |  |
| 4. Scale Factor | <p>The ratio of corresponding sides of two similar shapes.</p> <p>To find a scale factor, divide a length on one shape by the corresponding length on a similar shape.</p> |  <p style="text-align: center;">Scale Factor = $15 \div 10 = 1.5$</p> |
| 5. Finding missing lengths in similar shapes | <ol style="list-style-type: none"> 1. Find the scale factor. 2. Multiply or divide the corresponding side to find a missing length. <p>If you are finding a missing length on the larger shape you will need to multiply by the scale factor.</p> <p>If you are finding a missing length on the smaller shape you will need to divide by the scale factor.</p> |  <p style="text-align: center;">Scale Factor = $3 \div 2 = 1.5$ $x = 4.5 \times 1.5 = 6.75\text{cm}$</p> |
| 6. Similar Triangles | <p>To show that two triangles are similar, show that:</p> <ol style="list-style-type: none"> 1. The three sides are in the same proportion 2. Two sides are in the same proportion, and their included angle is the same 3. The three angles are equal |  |

