

Important Concepts	Examples		
<p><b>Corresponding</b> Corresponding sides or angles have the same relative position in similar figures.</p>		<p><b>Corresponding Sides</b> AC and DF AB and DE BC and EF</p>	<p><b>Corresponding angles</b> A and D B and E C and F</p>
<p><b>Similarity</b> Two figures are similar if: (1) the measures of their <b>corresponding</b> angles are equal and (2) the lengths of their <b>corresponding</b> sides increase by the same factor, called the <b>scale factor</b>.</p>	<p>The two figures at the right are similar. The corresponding angle measures are equal. The side lengths in Figure B are 1.5 times as long as those in Figure A.</p> <p>So, the scale factor from Figure A to Figure B is 1.5. (Figure A stretches or is enlarged by a factor of 1.5, resulting in Figure B.) We also say that the scale factor from Figure B to Figure A is <math>\frac{1}{1.5}</math> or <math>\frac{2}{3}</math>. (Figure B shrinks by a factor of <math>\frac{2}{3}</math>, resulting in figure A.)</p>		
<p><b>Scale Factor</b> The number used to multiply the lengths of a figure to stretch or shrink it into a similar image.  A scale factor larger than 1 will enlarge a figure. A scale factor between 0 and 1 will reduce a figure.  The scale factor of two similar figures is given by a ratio that compares the corresponding sides: <math display="block">\frac{\text{length of a side on the image}}{\text{length of a side on the original}}</math></p>	<p>If we use a scale factor of <math>\frac{1}{2}</math>, all lengths in the image are <math>\frac{1}{2}</math> as long as the corresponding lengths in the original.</p> <p>The base of the original triangle is 3 units. The base of the image is 1.5 units.</p> <p>The scale factor is <math>\frac{1.5}{3} = \frac{3}{6} = \frac{1}{2}</math>.</p>		
<p><b>Area and Scale Factor</b> Lengths of similar figures will stretch (or shrink) by a scale factor. Areas of the figures will not change in the same way.</p>	<p>Applying a scale factor of 2 to a figure increases the area by a factor of 4.</p> <p>Applying a scale factor of 3 to a figure, increases the area by a factor of 9. The original area is 6 cm<sup>2</sup>. The area of the image is 9 times as large (54 cm<sup>2</sup>).</p>		

On the **CMP Parent Web Site**, you can learn more about the mathematical goals of each unit. See the glossary, and examine worked-out examples of ACE problems.  
<http://www.math.msu.edu/cmp/parents/home>