

## Ratios & Proportions

<p><b>Objectives</b></p> <ul style="list-style-type: none"> <li>• Solve Proportions</li> </ul> <p><b>Notes</b></p> <p><b>Definition</b>  <i>Ratio</i> – a comparison of two numbers by division</p> <p><b>Ratios can be written in three different ways</b></p> <ol style="list-style-type: none"> <li>1. Using the word “to”               <ul style="list-style-type: none"> <li><math>x</math> to <math>y</math></li> <li>5 to 7</li> <li>8 to 3</li> </ul> </li> <li>2. Using a colon               <ul style="list-style-type: none"> <li><math>x:y</math></li> <li>5:7</li> <li>8:3</li> </ul> </li> <li>3. And as a fraction in simplest form.               <ul style="list-style-type: none"> <li><math>\frac{x}{y}</math>   <math>\frac{5}{7}</math>   <math>\frac{8}{3}</math></li> </ul> </li> </ol> <p><b>Definition</b>  <i>Proportion</i> – an equation stating that two ratios are equal</p> <p>Examples of proportions:</p> $\frac{10}{5} = \frac{30}{15} \quad \frac{1}{2} = \frac{3}{6} \quad \frac{3}{4} = \frac{15}{20}$ <p>To determine if two ratios form a proportion, check their <i>cross products</i>.</p> <p>Proportions that involve a variable can be solved using cross products.</p>	<p><b>Examples</b></p> <p>Fill in the missing number to complete the proportion.</p> <ol style="list-style-type: none"> <li>1. <math>\frac{1}{5} = \frac{\quad}{25}</math></li> <li>2. <math>\frac{\quad}{6} = \frac{12}{24}</math></li> <li>3. <math>\frac{3}{\quad} = \frac{21}{28}</math></li> <li>4. <math>\frac{33}{\quad} = \frac{3}{5}</math></li> <li>5. <math>\frac{4}{9} = \frac{40}{\quad}</math></li> <li>6. <math>\frac{12}{8} = \frac{\quad}{2}</math></li> </ol> <p>Use cross products to determine whether each pair of ratios forms a proportion.</p> <ol style="list-style-type: none"> <li>7. <math>\frac{2}{3}, \frac{12}{18}</math></li> <li>8. <math>\frac{2}{7}, \frac{4}{14}</math></li> <li>9. <math>\frac{3}{8}, \frac{6}{12}</math></li> <li>10. <math>\frac{1.5}{3}, \frac{4.5}{9}</math></li> <li>11. <math>\frac{2.5}{6}, \frac{3.4}{5.2}</math></li> <li>12. <math>\frac{2.3}{3.4}, \frac{0.3}{3.6}</math></li> </ol>
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