

Math Chapter 2 Study Guide	
Least Common Denominator	Unlike fractions are fractions with different denominators. You can add and subtract unlike fractions with the help of fraction bars.
Benchmark	A benchmark is a reference point on a number line that is useful for rounding fractions.
<b>Adding and Subtracting Fractions</b>	<div style="border: 1px solid red; padding: 5px;"> <p><b>Step 1</b></p> <math display="block">\begin{array}{r} \frac{5}{6} = \frac{5 \times 9}{6 \times 9} = \frac{45}{54} \\ + \frac{4}{9} = \frac{4 \times 6}{9 \times 6} = + \frac{24}{54} \end{array}</math> <p>Multiply 6 and 9 to find a common denominator, 54. Use the common denominator to write equivalent fractions.</p> </div>
To add or subtract unlike fractions without using models, find equivalent fractions. Equivalent fractions can be written by using a common denominator or the least common denominator (LCD). The LCD is the least common multiple (LCM) of two or more denominators.	<div style="border: 1px solid red; padding: 5px;"> <p><b>Step 1</b></p> <math display="block">\begin{array}{r} \frac{5}{6} = \frac{5 \times 9}{6 \times 9} = \frac{45}{54} \\ + \frac{4}{9} = \frac{4 \times 6}{9 \times 6} = + \frac{24}{54} \end{array}</math> <p>Multiply 6 and 9 to find a common denominator, 54. Use the common denominator to write equivalent fractions.</p> </div>
<b>Step 1</b>	<b>Step 2</b>
<div style="border: 1px solid red; padding: 5px;"> <math display="block">\begin{array}{r} \frac{5}{6} = \frac{5 \times 9}{6 \times 9} = \frac{45}{54} \\ + \frac{4}{9} = \frac{4 \times 6}{9 \times 6} = + \frac{24}{54} \end{array}</math> <p>Multiply 6 and 9 to find a common denominator, 54. Use the common denominator to write equivalent fractions.</p> </div>	<div style="border: 1px solid red; padding: 5px;"> <math display="block">\begin{array}{r} \frac{5}{6} = \frac{45}{54} \\ + \frac{4}{9} = + \frac{24}{54} \\ \hline \frac{69}{54} \text{ or } 1\frac{5}{18} \end{array}</math> <p>Add the numerators. Write the sum over the denominator.</p> <p>Write the answer as a fraction or as a mixed number.</p> </div>
<b>Adding and Subtracting Mixed Numbers</b>	<div style="border: 1px solid red; padding: 5px;"> <p>Add. <math>3\frac{2}{3} + 2\frac{3}{4}</math></p> <math display="block">\begin{array}{r} 3\frac{2}{3} = 3\frac{8}{12} \\ + 2\frac{3}{4} = 2\frac{9}{12} \\ \hline 5\frac{17}{12} = 5 + 1\frac{5}{12} = 6\frac{5}{12} \end{array}</math> <p>Write equivalent fractions, using the LCD, 12. Add fractions. Add whole numbers.</p> <p>Rename the fraction as a mixed number. Rewrite the sum.</p> </div>

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	<p>Estimate. <math>4\frac{4}{5}</math> is close to 5, and <math>2\frac{1}{4}</math> is close to 2. So, the difference is about 3.</p> $4\frac{4}{5} = 4\frac{16}{20}$ <p style="text-align: right;">Write equivalent fractions using the LCD, 20.</p> $-2\frac{1}{4} = -2\frac{5}{20}$ <p style="text-align: right;">Subtract fractions.</p> <hr style="width: 10%; margin-left: auto; margin-right: 0;"/> $2\frac{11}{20}$ <p style="text-align: right;">Subtract whole numbers.</p>
Subtraction of Fractions with Renaming	<div style="border: 1px solid red; padding: 5px;"> <p><b>Step 1</b></p> <math display="block">8\frac{1}{3} = 8\frac{4}{12}</math> <math display="block">-4\frac{7}{12} = -4\frac{7}{12}</math> <hr style="width: 10%; margin-left: auto; margin-right: 0;"/> <p style="text-align: right;">The LCD of <math>\frac{1}{3}</math> and <math>\frac{7}{12}</math> is 12. Write equivalent fractions using the LCD.</p> </div>
<p>In the example, borrow 1 from the 8. Then add 12 to the 4 (numerator). That gives you 16. Why? Because <math>12/12 = 1</math>. Remember you borrowed 1 from the 8. Now subtract 7 from 16.</p>	<div style="border: 1px solid red; padding: 5px;"> <p><b>Step 2</b></p> <math display="block">8\frac{1}{3} = 8\frac{4}{12} = 7\frac{16}{12}</math> <math display="block">-4\frac{7}{12} = -4\frac{7}{12} = -4\frac{7}{12}</math> <hr style="width: 10%; margin-left: auto; margin-right: 0;"/> <math display="block">3\frac{9}{12}, \text{ or } 3\frac{3}{4}</math> <p style="text-align: right;">Subtract, and then simplify.</p> <p style="text-align: right;"><math>\frac{7}{12}</math> is greater than <math>\frac{4}{12}</math>, so rename <math>8\frac{4}{12}</math>.</p> <p style="text-align: right;"><math>8\frac{4}{12} = 7 + \frac{12}{12} + \frac{4}{12} = 7\frac{16}{12}</math>.</p> </div>