



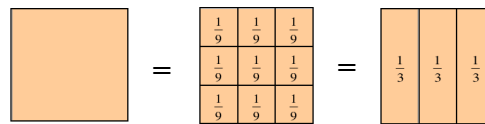
**4.6 Addition and Subtraction of Mixed Numbers**

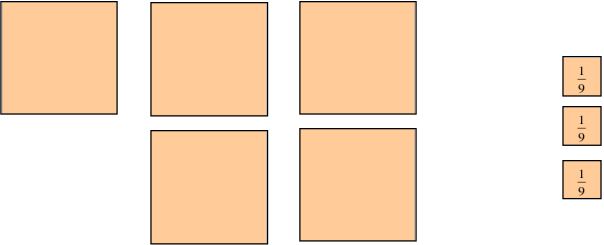
Models of Addition of Mixed Numbers

**Example (a)**

I found a dollar and one quarter in the pocket of my jacket.		$1\frac{1}{4}$
I found three dollars and 2 quarters in the pocket of my sweater.		$+ 3\frac{2}{4}$ <hr style="width: 10%; margin-left: 0;"/>
How much money in total did I find?	4 dollars      3 quarters	$4\frac{3}{4}$

**Example (b)**

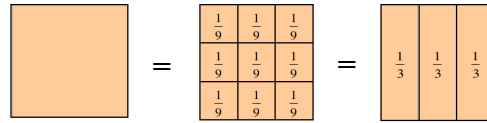


$  \begin{array}{r}  \phantom{+} \quad \square \quad \square \\  + \quad \square \quad \square \quad \square \\  \hline  \end{array}  $	$  \begin{array}{r}  2\frac{2}{9} \\  + 3\frac{1}{9} \\  \hline  \end{array}  $
	$5\frac{3}{9} = 5\frac{1}{3}$



**Addition of Mixed Numbers that Require Renaming**

**Example**



<p>Two large orange squares and four small orange squares labeled <math>\frac{1}{9}</math>.</p>	$2\frac{4}{9}$
<p style="text-align: center;">+</p> <p>Three large orange squares and seven small orange squares labeled <math>\frac{1}{9}</math>.</p>	$+ 3\frac{7}{9}$ <hr style="width: 50%; margin: 0 auto;"/>
<p>Five large orange squares and eleven small orange squares labeled <math>\frac{1}{9}</math>.</p>	$5\frac{11}{9}$
<p>Six large orange squares and two small orange squares labeled <math>\frac{1}{9}</math>.</p>	$= 5 + 1\frac{2}{9} = 6\frac{2}{9}$

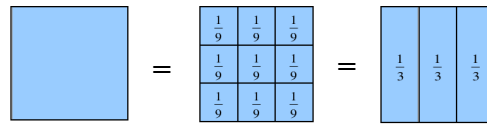
<i>Demonstration Problems</i>	<i>Practice Problems</i>
<p>Add and simplify by using mixed numbers.</p> <p><b>3. (a)</b> <math>5\frac{5}{9} + 3\frac{7}{9} =</math></p>	<p>Add and simplify by using mixed numbers.</p> <p><b>3. (b)</b> <math>3\frac{7}{8} + 4\frac{3}{8} =</math></p>
<p>Add and simplify by using improper fractions.</p> <p><b>4. (a)</b> <math>5\frac{5}{9} + 3\frac{7}{9} =</math></p>	<p>Add and simplify by using improper fractions.</p> <p><b>4. (b)</b> <math>3\frac{7}{8} + 4\frac{3}{8} =</math></p>
<p>Answers: <b>3. (b)</b> <math>8\frac{1}{4}</math>; <b>4. (b)</b> <math>8\frac{1}{4}</math></p>	

**Subtraction of Mixed Numbers**

<i>Demonstration Problems</i>	<i>Practice Problems</i>
<p>Subtract and simplify, if possible.</p> <p><b>5. (a)</b> <math>3\frac{3}{5} - 1\frac{2}{5} =</math></p>          <p><b>6. (a)</b> <math>5\frac{4}{10} - 3\frac{2}{10} =</math></p>	<p>Subtract and simplify, if possible.</p> <p><b>5. (b)</b> <math>2\frac{2}{3} - 1\frac{1}{3} =</math></p>          <p><b>6. (b)</b> <math>7\frac{4}{9} - 2\frac{1}{9} =</math></p>
<b>Answers:</b> <b>5. (b)</b> $1\frac{1}{3}$ ; <b>6. (b)</b> $5\frac{1}{3}$	

**Subtraction of Mixed Numbers that Require Renaming**

**Example**



	$3\frac{4}{9}$ $- 1\frac{7}{9}$ <hr style="width: 50%; margin: auto;"/>
	$2\frac{13}{9}$ $- 1\frac{7}{9}$ <hr style="width: 50%; margin: auto;"/>
	$1\frac{6}{9} = 1\frac{2}{3}$



<i>Demonstration Problems</i>	<i>Practice Problems</i>
<p>Simplify, if possible.</p> <p><b>9. (a)</b> <math>1\frac{5}{6} + 4\frac{3}{4} =</math></p>          <p><b>10. (a)</b> <math>8\frac{1}{2} - 3\frac{4}{5} =</math></p>	<p>Simplify, if possible.</p> <p><b>9. (b)</b> <math>2\frac{1}{2} + 5\frac{2}{3} =</math></p>          <p><b>10. (b)</b> <math>4\frac{3}{4} - 2\frac{7}{8} =</math></p>
Answers: <b>9. (b)</b> $8\frac{1}{6}$ ; <b>10. (b)</b> $1\frac{7}{8}$	