NF5-12 Flexibility with Equivalent Fractions and Lowest Terms

1. Group the squares to show …
   a) six twelfths equals one half \( \frac{6}{12} = \frac{1}{2} \)
   b) six twelfths equals three sixths \( \frac{6}{12} = \frac{3}{6} \)

2. Group shaded squares to show an equivalent fraction.
   a) \( \frac{2}{8} = \frac{4}{4} \)
   b) \( \frac{6}{10} = \frac{5}{5} \)
   c) \( \frac{3}{9} = \frac{3}{3} \)

3. Imagine erasing the dotted lines in the first circle. Shade the second circle to show the result and then write the equivalent fraction.
   a) \( \frac{2}{4} = \frac{1}{2} \)
   b) \( \frac{2}{6} \)
   c) \( \frac{4}{8} \)
   d) \( \frac{4}{8} \)
   e) \( \frac{4}{6} \)
   f) \( \frac{6}{9} \)
4. Imagine erasing the dotted lines. Then write the equivalent fraction.

   a) \( \frac{4}{6} = \frac{\div 2}{\div 2} = \frac{\text{This number tells you how many slices to combine}}{3} \)
   
   b) \( \frac{2}{4} = \frac{\div 2}{\div 2} = \frac{2}{2} \)

   c) \( \frac{2}{8} = \frac{\div 2}{\div 2} = \frac{\text{}}{\text{}} \)
   
   d) \( \frac{4}{8} = \frac{\div 4}{\div 4} = \frac{\text{}}{\text{}} \)

   e) \( \frac{3}{9} = \frac{\div 3}{\div 3} = \frac{\text{}}{\text{}} \)
   
   f) \( \frac{4}{10} = \frac{\div 2}{\div 2} = \frac{\text{}}{\text{}} \)

You can divide the numerator and denominator by the same number to get an equivalent fraction.

Example: Picture A

\[ \frac{2}{4} = \frac{\div 2}{\div 2} = \frac{1}{2} \]

Picture A has twice as many \textbf{parts} as Picture B.

Picture A has twice as many \textbf{shaded parts} as Picture B.

5. Use division to find the equivalent fractions.

   a) \( \frac{2}{6} = \frac{\div 2}{\div 2} = \frac{3}{3} \)
   
   b) \( \frac{5}{10} = \frac{\div 5}{\div 5} = \frac{2}{2} \)

   c) \( \frac{2}{10} = \frac{\div 2}{\div 2} = \frac{1}{1} \)
   
   d) \( \frac{3}{6} = \frac{\div 3}{\div 3} = \frac{1}{1} \)

   e) \( \frac{10}{15} = \frac{\div 5}{\div 5} = \frac{\text{}}{\text{}} \)
   
   f) \( \frac{8}{28} = \frac{\div 4}{\div 4} = \frac{2}{2} \)

6. Use division to write three fractions equivalent to ...

   a) \( \frac{8}{32} = \frac{\text{}}{\text{}} = \frac{\text{}}{\text{}} = \frac{\text{}}{\text{}} \)
   
   b) \( \frac{27}{54} = \frac{\text{}}{\text{}} = \frac{\text{}}{\text{}} = \frac{\text{}}{\text{}} \)

   c) \( \frac{12}{36} = \frac{\text{}}{\text{}} = \frac{\text{}}{\text{}} = \frac{\text{}}{\text{}} \)
   
   d) \( \frac{30}{60} = \frac{\text{}}{\text{}} = \frac{\text{}}{\text{}} = \frac{\text{}}{\text{}} \)
A fraction is reduced to **lowest terms** if the numerator and the denominator don’t have any common factor greater than 1.

Example: \(\frac{3}{6}\) is **not** in lowest terms (because the common factor of 3 and 6 is 3)
but \(\frac{1}{2}\) is lowest term.

To reduce a fraction to lowest terms, divide the numerator and the denominator by their common factor.

\[
\frac{3}{6} \div 3 = \frac{1}{2}
\]

7. Complete the division to reduce the fraction.

a) \(\frac{2}{4} \div 2 = \frac{1}{2}\)  
   b) \(\frac{2}{6} \div 2 = \frac{1}{2}\)  
   c) \(\frac{4}{8} \div 4 = \frac{1}{2}\)  
   d) \(\frac{3}{9} \div 3 = \frac{1}{3}\)

\[
\begin{align*}
\frac{6}{8} \div 2 &= \frac{3}{4} \\
\frac{2}{10} \div 2 &= \frac{1}{5} \\
\frac{5}{15} \div 5 &= \frac{1}{3} \\
\frac{8}{12} \div 4 &= \frac{2}{3}
\end{align*}
\]

\[
\begin{align*}
\frac{12}{15} \div 3 &= \frac{4}{5} \\
\frac{12}{18} \div 6 &= \frac{2}{3} \\
\frac{6}{21} \div 3 &= \frac{2}{7} \\
\frac{21}{28} \div 7 &= \frac{3}{4}
\end{align*}
\]

8. Reduce the fraction by dividing.

a) \(\frac{2}{10} = \frac{1}{5}\)  
   b) \(\frac{3}{6} = \frac{1}{2}\)  
   c) \(\frac{2}{8} = \frac{1}{4}\)  
   d) \(\frac{2}{12} = \frac{1}{6}\)

\[
\begin{align*}
\frac{5}{15} &= \frac{1}{3} \\
\frac{3}{15} &= \frac{1}{5} \\
\frac{4}{12} &= \frac{1}{3} \\
\frac{6}{9} &= \frac{2}{3}
\end{align*}
\]

\[
\begin{align*}
\frac{4}{6} &= \frac{2}{3} \\
\frac{10}{15} &= \frac{2}{3} \\
\frac{20}{25} &= \frac{4}{5} \\
\frac{9}{12} &= \frac{3}{4}
\end{align*}
\]

\[
\begin{align*}
\frac{15}{18} &= \frac{5}{6} \\
\frac{28}{35} &= \frac{4}{5} \\
\frac{10}{15} &= \frac{2}{3} \\
\frac{21}{30} &= \frac{7}{10}
\end{align*}
\]

9. Write whether the fraction is in lowest terms. Explain how you know.

a) \(\frac{2}{11}\)  
   b) \(\frac{12}{27}\)  
   c) \(\frac{16}{25}\)  
   d) \(\frac{9}{33}\)

10. Shondra says she reduced \(\frac{12}{18}\) to lowest terms by dividing the numerator and denominator by 2.

\[
\frac{12}{18} \div 2 = \frac{6}{9}
\]

What mistake did she make? Explain.
NF5-13 Adding and Subtracting Fractions I

To add $\frac{1}{4}$ and $\frac{3}{8}$ Leila finds a fraction equivalent to $\frac{1}{4}$ with the denominator 8.

\[
\frac{1}{4} + \frac{3}{8} = \frac{2}{8} \quad \text{is equivalent to} \quad \frac{1}{4}
\]

\[
\frac{1}{4} \times 2 = \frac{2}{8} + \frac{3}{8} = \frac{5}{8}
\]

1. Add or subtract fractions by changing to equivalent fractions with the same denominator.

a) $\frac{2}{5} \times \frac{1}{4} = \frac{7}{10} \quad b) \quad \frac{1}{2} + \frac{1}{4} \quad c) \quad \frac{7}{12} - \frac{1}{6}$

\[
= \frac{2}{10} + \frac{7}{10} = \frac{9}{10}
\]

2. Saul walks $\frac{2}{3}$ mi from his home to his school. Rita walks $\frac{5}{6}$ mi from her home to school. How much farther does Rita walk to school than Saul?

3. A pastry stand has three kinds of pastries. Last week, $\frac{1}{4}$ of the pastries sold were meat pastries, $\frac{1}{2}$ were vegetable pastries, and $\frac{1}{8}$ were cheese pastries.

a) What fraction of the total number of pastries was sold?

b) What fraction was not sold?
1. Make equivalent fractions for the pair of fractions until you find two with the same denominator.

   a) \[ \frac{1}{3} = \frac{2}{6} = \frac{9}{18} = \frac{12}{24} = \frac{15}{30} \]
   \[ \frac{2}{5} = \frac{10}{25} = \frac{15}{30} \]

   b) \[ \frac{2}{5} = \frac{10}{25} = \frac{15}{30} = \frac{20}{50} \]
   \[ \frac{3}{4} = \frac{8}{16} = \frac{12}{24} = \frac{16}{32} = \frac{20}{40} \]

   c) \[ \frac{1}{4} = \frac{2}{8} = \frac{10}{40} = \frac{12}{12} = \frac{20}{20} = \frac{24}{24} = \frac{28}{28} \]

   d) \[ \frac{5}{6} = \frac{10}{12} = \frac{18}{24} = \frac{24}{24} \]

   \[ \frac{5}{8} = \frac{10}{16} = \frac{15}{24} = \frac{20}{32} = \frac{24}{48} \]

Sam wants to add \( \frac{1}{2} + \frac{2}{3} \).

He uses a diagram to create equivalent fractions with the same denominator.

\[ \frac{1}{2} = \frac{3}{6} \quad \text{and} \quad \frac{2}{3} = \frac{4}{6}, \quad \text{so the common denominator is 6.} \]

\[ \begin{array}{c}
\text{circle} \quad \text{circle 2} \quad \text{circle 3} \quad \text{circle 4} \\
\hline
\text{shade} \quad \text{shade} \quad \text{shade} \quad \text{shade}
\end{array} \]

Now he can add \( \frac{1}{2} + \frac{2}{3} = \frac{3}{6} + \frac{4}{6} = \frac{7}{6} \).

2. Use the pictures to add the fractions.

   a) \[ \frac{1}{2} = \frac{3}{6} \quad \frac{1}{2} + \frac{1}{3} = \frac{3}{6} + \frac{2}{6} = \frac{5}{6} \]

   b) \[ \frac{1}{2} = \frac{5}{10} \quad \frac{1}{2} + \frac{1}{5} = \frac{5}{10} + \frac{2}{10} = \frac{7}{10} \]

   c) \[ \frac{1}{2} = \frac{1}{2} + \frac{1}{4} = \frac{2}{4} + \frac{1}{4} = \frac{3}{4} \]

   d) \[ \frac{2}{3} = \frac{2}{3} + \frac{1}{6} = \frac{4}{6} + \frac{1}{6} = \frac{5}{6} \]
Two fractions must have the same denominator (or a common denominator) to be added. Remember, to create a common denominator:

Multiply the numerator and denominator of the first fraction by the denominator of the second.

\[
\begin{align*}
4 \times \frac{2}{3} &= \frac{8}{12} \\
1 \times \frac{3}{4} &= \frac{3}{12} \\
&= \frac{8}{12} + \frac{3}{12} = \frac{11}{12}
\end{align*}
\]

3. Add the fractions by finding a common denominator.

\[
\begin{align*}
a) \quad 3 \times \frac{1}{2} + 2 \times \frac{2}{3} &= \frac{3}{6} + \frac{4}{6} = \frac{7}{6} \\
b) \quad \frac{3}{4} + \frac{2}{5} &= \frac{15}{20} + \frac{8}{20} = \frac{23}{20} \\
c) \quad \frac{3}{4} + \frac{2}{3} &= \frac{9}{12} + \frac{8}{12} = \frac{17}{12} \\
d) \quad \frac{3}{7} + \frac{1}{3} &= \frac{9}{21} + \frac{7}{21} = \frac{16}{21} \\
e) \quad \frac{1}{8} + \frac{1}{7} &= \frac{7}{56} + \frac{8}{56} = \frac{15}{56} \\
f) \quad \frac{2}{5} + \frac{1}{6} &= \frac{12}{30} + \frac{5}{30} = \frac{17}{30}
\end{align*}
\]

When the denominator of one fraction divides the denominator of another, you only need to change one fraction.

\[
\begin{align*}
5 \times \frac{1}{3} + \frac{2}{15} &= \frac{15}{5} + \frac{2}{15} \\
7 \times \frac{2}{5} + \frac{3}{7} &= \frac{14}{7} + \frac{3}{7} = \frac{17}{7}
\end{align*}
\]

Change one fraction. Change both.

4. Circle the pairs of fractions in which the denominator of one fraction divides into the other.

\[
\begin{align*}
\frac{1}{2} + \frac{3}{10} &\quad \frac{1}{2} + \frac{2}{7} &\quad \frac{4}{5} + \frac{9}{10} &\quad \frac{2}{3} + \frac{5}{6} &\quad \frac{3}{5} + \frac{5}{8} &\quad \frac{3}{4} + \frac{11}{32}
\end{align*}
\]

5. Add or subtract the fractions by changing them to equivalent fractions with the same denominator.

\[
\begin{align*}
a) \quad \frac{2}{5} + \frac{1}{4} &= \frac{8}{20} + \frac{5}{20} = \frac{13}{20} \\
b) \quad \frac{4}{15} + \frac{2}{3} &= \frac{4}{15} + \frac{10}{15} = \frac{14}{15} \\
c) \quad \frac{2}{3} - \frac{1}{8} &= \frac{16}{24} - \frac{3}{24} = \frac{13}{24} \\
d) \quad \frac{3}{4} - \frac{1}{8} &= \frac{6}{8} - \frac{1}{8} = \frac{5}{8} \\
e) \quad \frac{11}{24} - \frac{1}{6} &= \frac{11}{24} - \frac{4}{24} = \frac{7}{24} \\
f) \quad \frac{2}{7} + \frac{1}{8} &= \frac{16}{56} + \frac{7}{56} = \frac{23}{56}
\end{align*}
\]
Whole numbers are the numbers 0, 1, 2, 3, and so on. The multiples of a whole number are the numbers you get by multiplying the number by another whole number. Examples:
The multiples of 2 are 2 × 0 = 0 2 × 1 = 2 2 × 2 = 4 2 × 3 = 6 2 × 4 = 8 ...
The multiples of 3 are 3 × 0 = 0 3 × 1 = 3 3 × 2 = 6 3 × 3 = 9 3 × 4 = 12 ...

1. a) Skip count to write the multiples of 3 up to 3 × 10.

0, 3, 6, __, __, __, __, __, __, __, __, __

b) Use your answers in part a) to circle the multiples of 3.

12 17 22 24 25 27

A number is a common multiple of two numbers if it is a multiple of both of them.

2. List the multiples of both numbers, up to 10 times each number. Write the first two common multiples, not including 0.

a) 3 and 5

Multiples of 3: 0, 3, 6, 9, 12, 15, 18, 21, 24, 27, 30

Multiples of 5: __________________________

The first two common multiples are _____ and _____.

b) 3 and 4

Multiples of 3: __________________________

Multiples of 4: __________________________

The first two common multiples are _____ and _____.

c) 2 and 5
d) 3 and 6
e) 2 and 7
f) 4 and 5

The number 0 is a multiple of every number. The lowest common multiple (LCM) of two numbers is the smallest whole number (not 0) that is a multiple of both numbers.

3. Find the lowest common multiple of the pair of numbers.

a) 4 and 10

4: 4, 8, 12, 16, 20
10: 10, 20

LCM = ______

d) 4 and 8

e) 9 and 12

f) 4 and 9
To add fractions with different denominators:

**Step 1:** Find the lowest common multiple (LCM) of the denominators.

\[
\frac{1}{3} + \frac{2}{5}
\]

Multiples of 3: 0, 3, 6, 9, 12, 15, 18

Multiples of 5: 0, 5, 10, 15, 20, 25, 30

The LCM of 3 and 5 is 15.

**Step 2:** Create equivalent fractions with the LCM as the denominator.

\[
\frac{5 \times 1}{5 \times 3} + \frac{2 \times 3}{5 \times 3}
\]

\[
= \frac{5}{15} + \frac{6}{15}
\]

\[
= \frac{11}{15}
\]

The LCM of the denominators is called the **lowest common denominator (LCD)** of the fractions.

4. Find the LCD of the pair of fractions. Then show what numbers you would multiply the numerator and denominator of each fraction by in order to add the fractions.

a) LCD = **6**

\[
\frac{3 \times 1}{3 \times 2} + \frac{2 \times 2}{3 \times 2}
\]

\[
= \frac{3}{6} + \frac{4}{6}
\]

\[
= \frac{7}{6}
\]

b) LCD = **6**

\[
\frac{3 \times 1}{4 \times 2} + \frac{1 \times 1}{8}
\]

\[
= \frac{3}{8} + \frac{1}{8}
\]

\[
= \frac{1}{2}
\]

c) LCD = **10**

\[
\frac{1 \times 1}{20} + \frac{1 \times 3}{5}
\]

\[
= \frac{1}{10} + \frac{3}{10}
\]

\[
= \frac{4}{10}
\]

d) LCD = **6**

\[
\frac{3 \times 2}{4 \times 3} + \frac{2 \times 3}{4 \times 3}
\]

\[
= \frac{6}{12} + \frac{6}{12}
\]

\[
= \frac{12}{12}
\]

5. Add or subtract the fractions. First change them to equivalent fractions with denominators equal to the LCD of the fractions.

a) \[
\frac{1}{5} + \frac{3}{4}
\]

\[
= \frac{4}{20} + \frac{15}{20}
\]

\[
= \frac{19}{20}
\]

b) \[
\frac{1}{3} - \frac{2}{15}
\]

\[
= \frac{5}{15} - \frac{2}{15}
\]

\[
= \frac{3}{15}
\]

c) \[
\frac{2}{3} + \frac{1}{8}
\]

\[
= \frac{16}{24} + \frac{3}{24}
\]

\[
= \frac{19}{24}
\]

d) \[
\frac{2}{3} - \frac{1}{12}
\]

\[
= \frac{8}{12} - \frac{1}{12}
\]

\[
= \frac{7}{12}
\]

6. Add or subtract.

a) \[
\frac{1}{6} + \frac{5}{12}
\]

\[
= \frac{2}{12} + \frac{5}{12}
\]

\[
= \frac{7}{12}
\]

b) \[
\frac{17}{25} - \frac{3}{5}
\]

\[
= \frac{17}{25} - \frac{15}{25}
\]

\[
= \frac{2}{25}
\]

c) \[
\frac{6}{7} - \frac{1}{4}
\]

\[
= \frac{24}{28} - \frac{7}{28}
\]

\[
= \frac{17}{28}
\]

d) \[
\frac{4}{9} + \frac{2}{5}
\]

\[
= \frac{20}{45} + \frac{18}{45}
\]

\[
= \frac{38}{45}
\]

e) \[
\frac{2}{3} + \frac{1}{4} + \frac{1}{2}
\]

\[
= \frac{8}{12} + \frac{3}{12} + \frac{6}{12}
\]

\[
= \frac{17}{12}
\]

f) \[
\frac{3}{15} + \frac{2}{3} + \frac{1}{5}
\]

\[
= \frac{1}{5} + \frac{5}{15} + \frac{2}{15}
\]

\[
= \frac{8}{15}
\]

g) \[
\frac{7}{15} + \frac{1}{3} - \frac{3}{5}
\]

\[
= \frac{14}{30} + \frac{10}{30} - \frac{18}{30}
\]

\[
= \frac{6}{30}
\]
	h) \[
\frac{1}{4} + \frac{17}{20} - \frac{3}{5}
\]

\[
= \frac{5}{20} + \frac{17}{20} - \frac{12}{20}
\]

\[
= \frac{10}{20}
\]
1. Add. Write your answer as a mixed number.
   a) \(3 \frac{6}{5} + 2\) =
   b) \(1 + 4 \frac{2}{3} =
   c) \(5 + 3 \frac{1}{2} =
   d) \(3 \frac{1}{3} + 4 =
   e) \(4 + 2 \frac{1}{4} =
   f) \(2 \frac{3}{5} + 1 =

2. Add by adding the parts and the wholes separately.
   a) \(3 \frac{1}{5} + 2 \frac{3}{5} = 5 \frac{4}{5}
   b) \(3 \frac{1}{3} + 1 \frac{1}{3} =
   c) \(2 \frac{1}{7} + 3 \frac{5}{7} =
   d) \(4 \frac{1}{6} + 2 \frac{3}{6} =
   e) \(2 \frac{3}{8} + 4 \frac{1}{8} =

3. Change the improper fraction to a mixed number.
   a) \(\frac{7}{5} = 1 \frac{2}{5}
   b) \(\frac{3}{2} = 1 \frac{1}{2}
   c) \(\frac{9}{7} = 1 \frac{2}{7}
   d) \(\frac{6}{5} =
   e) \(\frac{14}{10} =
   f) \(\frac{8}{5} =
   g) \(\frac{11}{6} =

4. The mixed number includes an improper fraction. Change it so it includes
   a proper fraction.
   a) \(2 \frac{4}{3} = 2 + 1 \frac{1}{3} = 3 \frac{1}{3}
   b) \(6 \frac{7}{5} =
   c) \(4 \frac{9}{8} =
   d) \(3 \frac{8}{6} =
   e) \(5 \frac{3}{2} =
   f) \(8 \frac{12}{7} =
   g) \(7 \frac{5}{3} =
   h) \(2 \frac{5}{4} =
   i) \(3 \frac{15}{9} =

Remember: A mixed number is made up of a whole number and a proper fraction.

When you add mixed numbers, the fraction part of the sum is sometimes an improper fraction (greater than 1).

You can change the fraction part to a proper fraction.
5. Add. You will need to change the fraction part of the sum to a proper fraction.
   a) $\frac{3}{7} + \frac{5}{7} = \frac{5}{7} = 5 + \frac{1}{7}$
   b) $\frac{4}{3} + 1\frac{2}{3}$
   c) $\frac{7}{5} + 1\frac{3}{5}$
   \[= \frac{6}{7}\]

6. Make the mixed numbers have the same denominator. Add the wholes and
   the parts separately.
   a) $\frac{2}{7} + 4\frac{1}{2}
   \[= \frac{2}{14} + 4\frac{7}{14} = \frac{6}{14}\]
   b) $\frac{5}{3} + 4\frac{1}{2}
   \[= \frac{5}{6} + 4\frac{1}{3}\]
   c) $\frac{2}{5} + 4\frac{1}{3}
   \[= \frac{2}{15}\]

7. Add. You will need to change the fraction part of the sum to a proper fraction.
   a) $\frac{3}{5} + 1\frac{2}{3}$
   b) $\frac{3}{4} + 1\frac{1}{3}$
   c) $4\frac{5}{6} + 2\frac{1}{5}$

8. Add. Write your answer in lowest terms.
   a) $\frac{3}{5} + 2\frac{9}{10}$
   b) $\frac{3}{6} + 4\frac{1}{4}$
   c) $2\frac{1}{6} + 4\frac{8}{15}$

   a) $\frac{2}{2} - 1\frac{1}{2} = 1$
   b) $\frac{3}{4} - 2\frac{1}{4} = 1\frac{1}{4}$
   c) $3\frac{3}{4} - 3\frac{3}{4} = 0$
   d) $\frac{2}{4} - 1\frac{1}{4} = 1\frac{2}{4}$
   e) $\frac{3}{8} - 1\frac{2}{8} = 1\frac{1}{8}$
   f) $\frac{3}{7} - 2 = 1\frac{4}{7}$

10. Subtract by separating the wholes and the parts.
    a) $\frac{5}{7} - \frac{3}{7} = 2\frac{2}{7}$
    b) $\frac{6}{5} - 2\frac{3}{5} = 3\frac{2}{5}$
    c) $\frac{6}{9} - 3\frac{4}{9} = 2\frac{3}{9}$
    d) $\frac{3}{7} - 1\frac{1}{7} = \frac{2}{7}$
    e) $\frac{3}{8} - 2\frac{3}{8} = \frac{2}{8}$
    f) $\frac{5}{11} - 1\frac{2}{11} = \frac{3}{11}$
To subtract $9\frac{1}{4} - 5\frac{3}{4}$:

**Step 1:** Regroup $9\frac{1}{4}$ by subtracting 1 from 9 and adding 1 to $\frac{1}{4}$:

$$9\frac{1}{4} = 8 + 1\frac{1}{4} = 8\frac{5}{4}$$

**Step 2:** Now you can subtract the wholes and parts separately:

$$9\frac{1}{4} - 5\frac{3}{4} = 8\frac{5}{4} - 5\frac{3}{4} = 3\frac{2}{4}$$

11. Regroup the mixed number by subtracting 1 from the whole number and making an improper fraction.

a) $4\frac{2}{5} = \frac{7}{5}$  
   b) $3\frac{3}{4} = \frac{2}{2}$  
   c) $2\frac{3}{8} = \frac{1}{1}$  
   d) $4\frac{3}{7} = \frac{7}{1}$  
   e) $2\frac{3}{5} = \frac{1}{1}$  
   f) $4\frac{7}{11} = \frac{1}{1}$

12. Subtract by regrouping.

a) $6\frac{1}{3} - 2\frac{2}{3} = \frac{5}{3} - 2\frac{2}{3} = 3\frac{2}{3}$  
   b) $4\frac{1}{3} - 1\frac{2}{3} = \frac{1}{3}$  
   c) $3\frac{5}{9} - 1\frac{7}{9} = \frac{5}{9}$

13. Make the mixed numbers have the same denominator. Then subtract the wholes and the parts separately.

a) $5\frac{2}{3} - 3\frac{1}{2} = \frac{5}{3} - 3\frac{3}{6} = 2\frac{1}{6}$  
   b) $6\frac{2}{5} - 1\frac{1}{3} = \frac{6}{5} - 3\frac{1}{2} = \frac{7}{5} - 3\frac{2}{3}$

14. Subtract. You will need to regroup.

a) $3\frac{1}{5} - 1\frac{3}{4} = 2\frac{6}{5} - 1\frac{3}{4} = 2\frac{24}{20} - 1\frac{15}{20} = 1\frac{9}{20}$  
   b) $5\frac{3}{7} - 1\frac{1}{2} = \frac{1}{2}$  
   c) $6\frac{3}{5} - 2\frac{2}{3} = \frac{1}{3}$

15. Add or subtract. Write your answer in lowest terms.

a) $4\frac{1}{3} - 1\frac{1}{2}$  
   b) $2\frac{1}{5} + 3\frac{6}{7}$  
   c) $7\frac{1}{3} - 4\frac{2}{5}$

16. Tom cut $1\frac{2}{3}$ m from a 4 m rope. How much is left?

17. Each large loaf of banana bread is cut in 8 pieces. From 3 large loaves at Jennifer’s birthday party, just $\frac{5}{8}$ of one is left. How much banana bread was eaten?