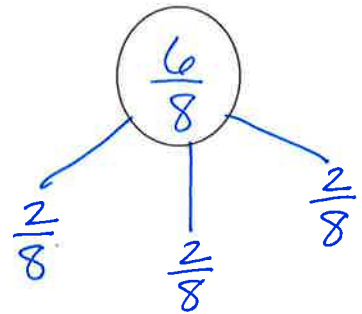
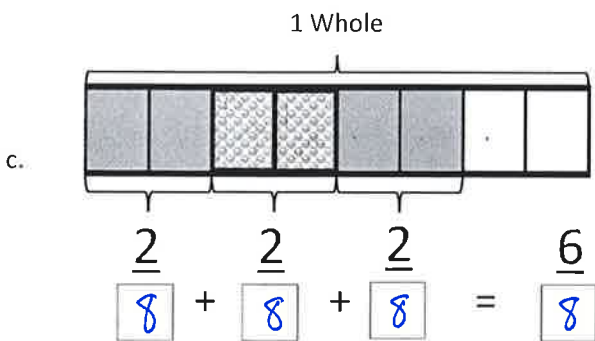
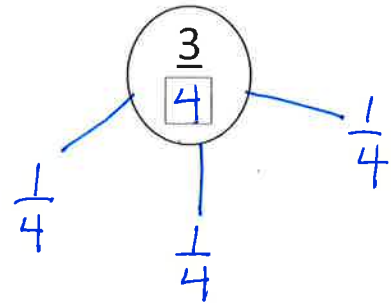
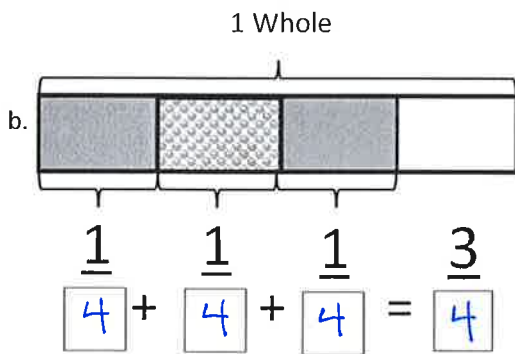
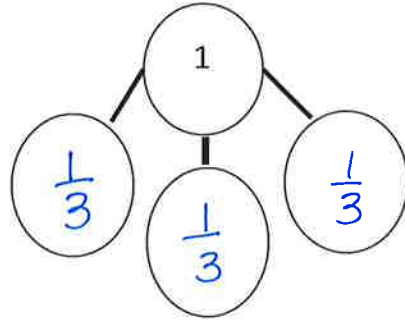
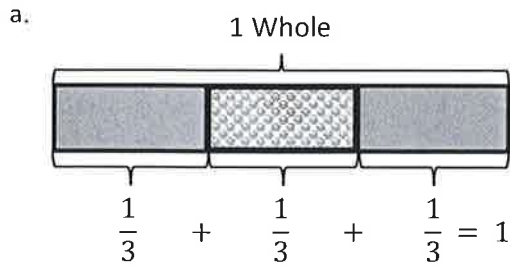
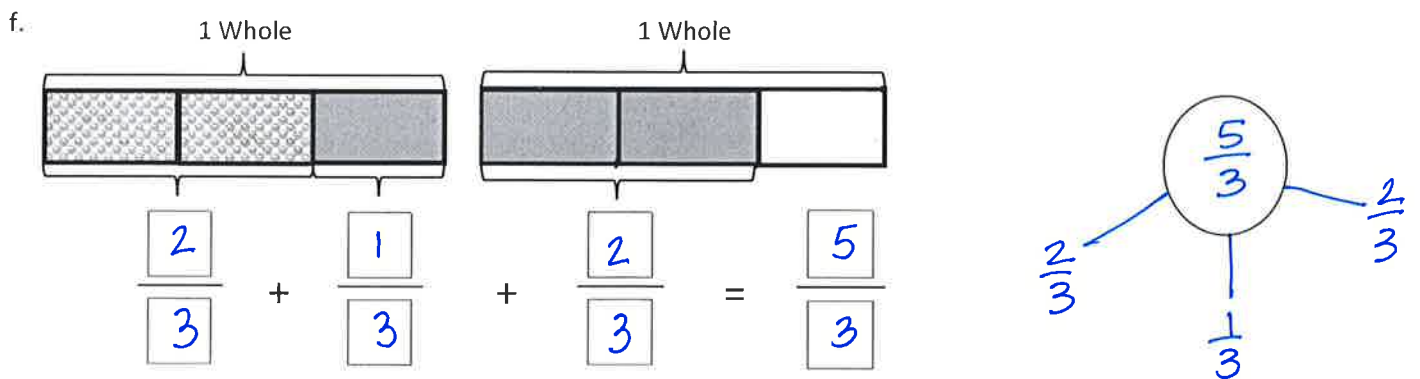
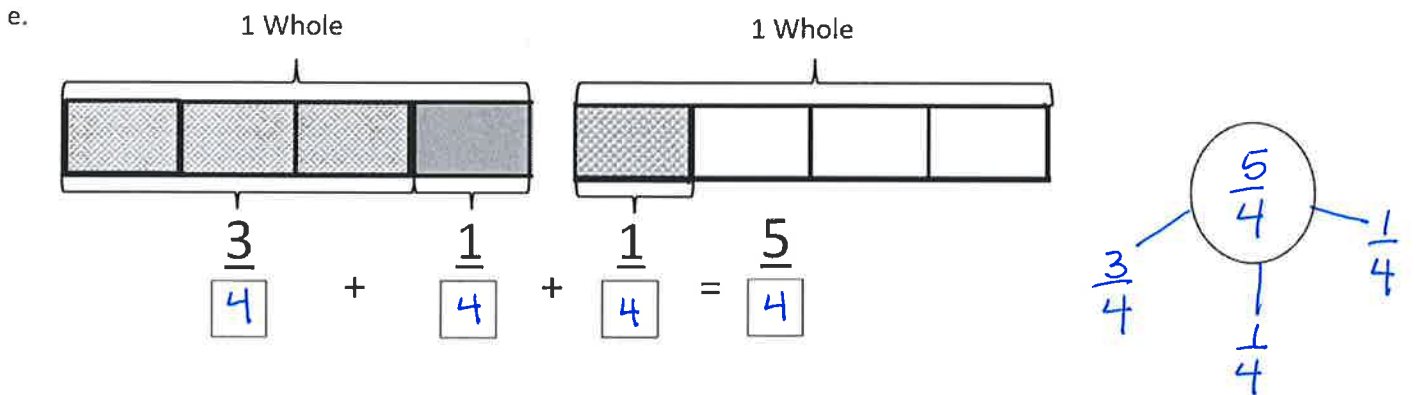
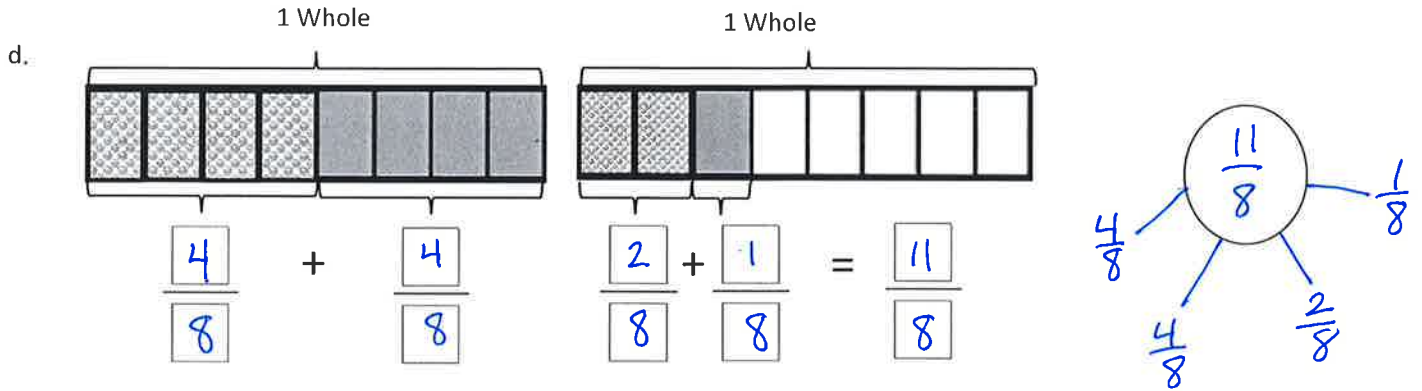


Name Key

1. Write a number sentence and draw a number bond to show the shaded part.



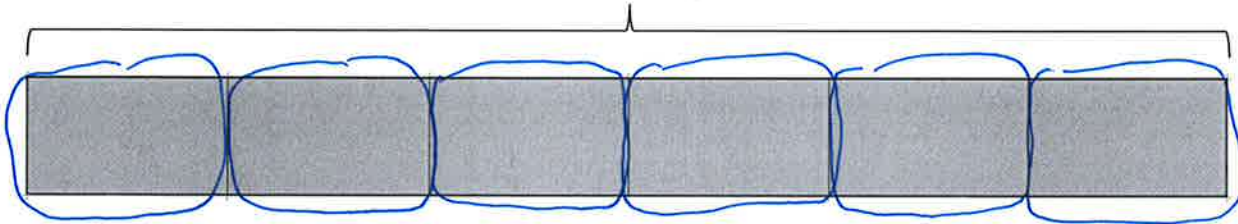


Name Key

1. Circle each addend on the tape diagram to show how the fraction is decomposed.

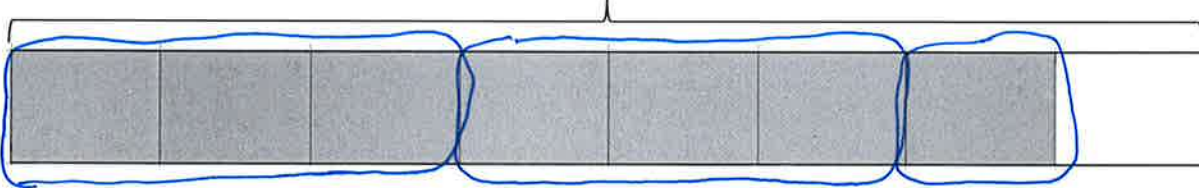
a.  $1 = \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6}$

1 whole =  $\frac{6}{6}$



b.  $\frac{7}{8} = \frac{3}{8} + \frac{3}{8} + \frac{1}{8}$

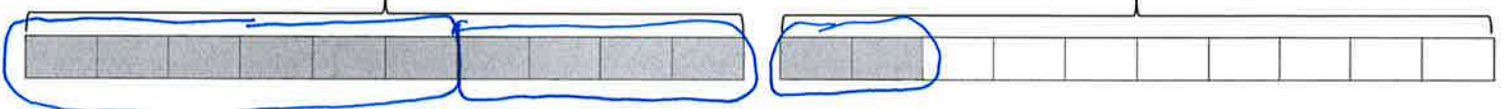
1 whole =  $\frac{8}{8}$



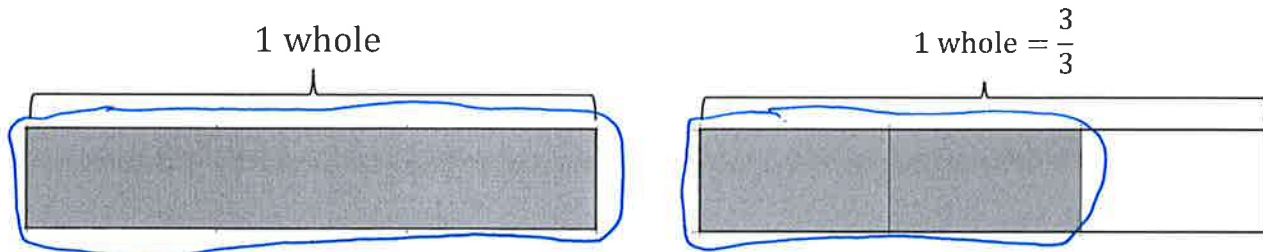
c.  $\frac{12}{10} = \frac{6}{10} + \frac{4}{10} + \frac{2}{10}$

1 whole =  $\frac{10}{10}$

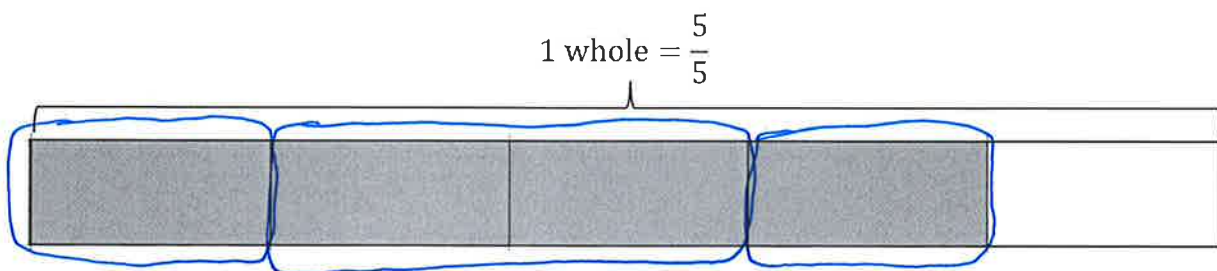
1 whole =  $\frac{10}{10}$



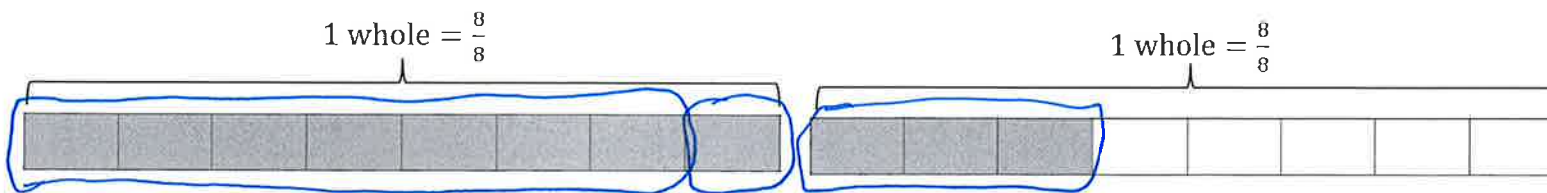
d.  $1\frac{2}{3} = 1 + \frac{2}{3}$



e.  $\frac{4}{5} = \frac{1}{5} + \frac{2}{5} + \frac{1}{5}$



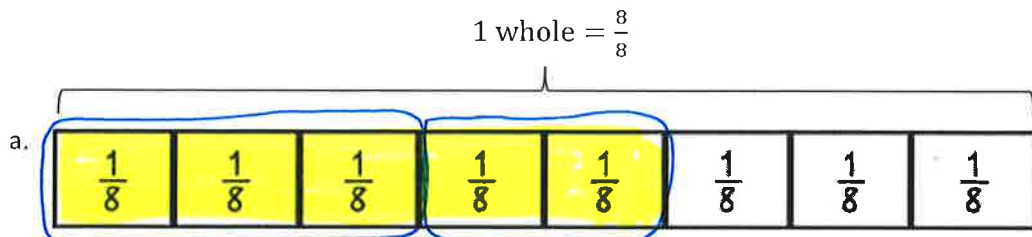
f.  $\frac{11}{8} = \frac{7}{8} + \frac{1}{8} + \frac{3}{8}$



Name Key

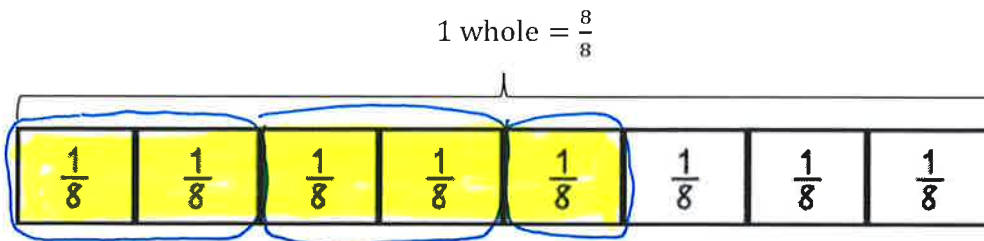
1. Step 1: Shade a tape diagram of the given fraction.

Step 2: Record the decomposition as a sum of fractions in **two different ways**.

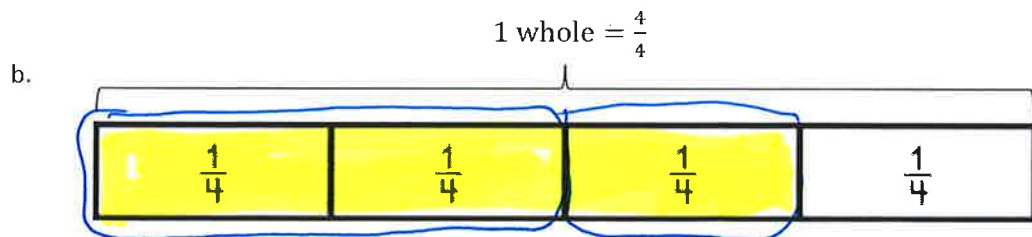


$$\frac{5}{8} = \frac{3}{8} + \frac{2}{8}$$

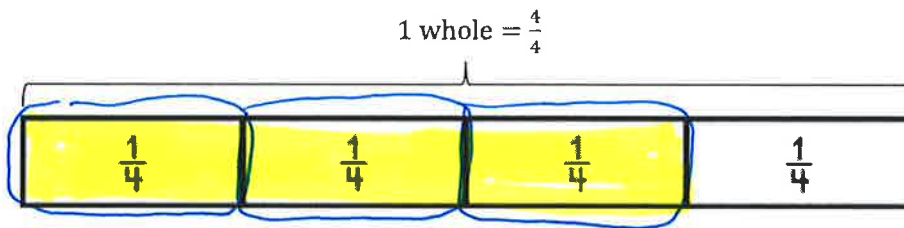
*possible equations*



$$\frac{5}{8} = \frac{2}{8} + \frac{2}{8} + \frac{1}{8}$$

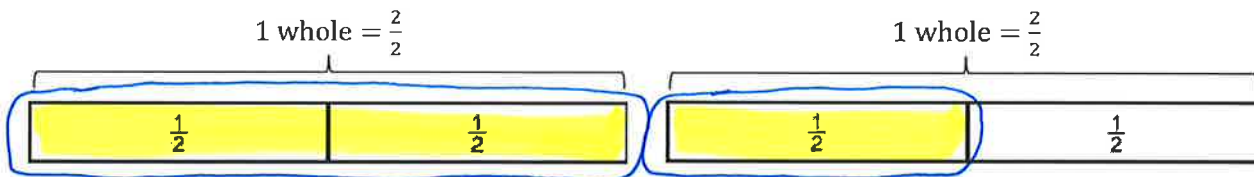


$$\frac{3}{4} = \frac{2}{4} + \frac{1}{4}$$

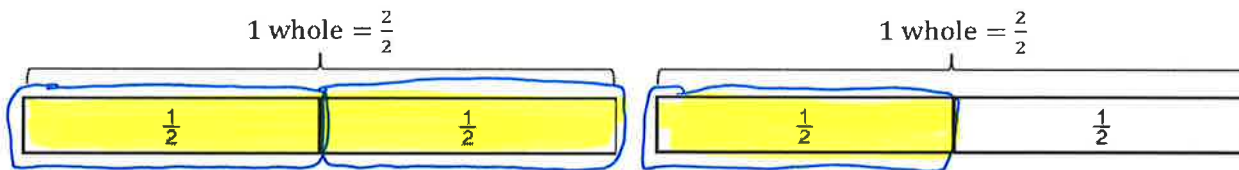


$$\frac{3}{4} = \frac{1}{4} + \frac{1}{4} + \frac{1}{4}$$

c.



$$\frac{3}{2} = \frac{2}{2} + \frac{1}{2}$$



$$\frac{3}{2} = \frac{1}{2} + \frac{1}{2} + \frac{1}{2}$$

2. Write two different number sentences showing how you can decompose the fraction.

a.  $\frac{7}{8} = \frac{5}{8} + \frac{2}{8}$

possible equations

$\frac{7}{8} = \frac{3}{8} + \frac{3}{8} + \frac{1}{8}$

b.  $\frac{5}{3} = \frac{2}{3} + \frac{3}{3}$

$\frac{5}{3} = \frac{2}{3} + \frac{2}{3} + \frac{1}{3}$

c.  $\frac{7}{5} = \frac{4}{5} + \frac{3}{5}$

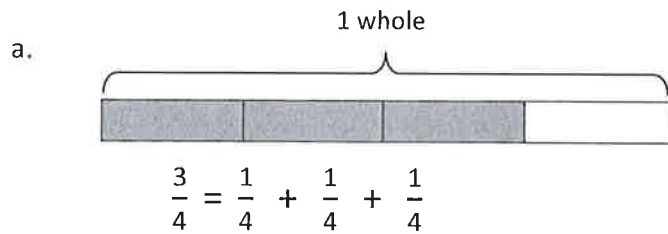
$\frac{7}{5} = \frac{2}{5} + \frac{2}{5} + \frac{2}{5} + \frac{1}{5}$

d.  $\frac{4}{3} = \frac{2}{3} + \frac{2}{3}$

$\frac{4}{3} = \frac{3}{3} + \frac{1}{3}$

Name Key

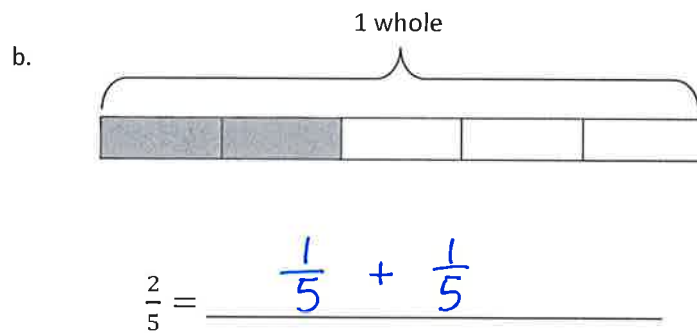
1. Decompose each fraction as a sum of unit fractions.  
Write the equivalent multiplication sentence.



Multiplication Sentence

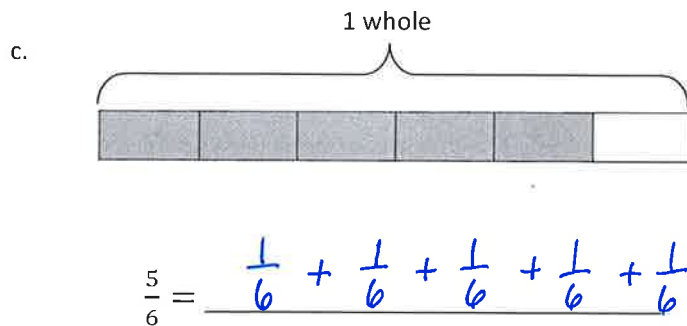
$\frac{3}{4} = 3$  groups of  $\frac{1}{4}$

$\frac{3}{4} = 3 \times \frac{1}{4}$



$\frac{2}{5} = 2$  groups of  $\frac{1}{5}$

$\frac{2}{5} = 2 \times \frac{1}{5}$

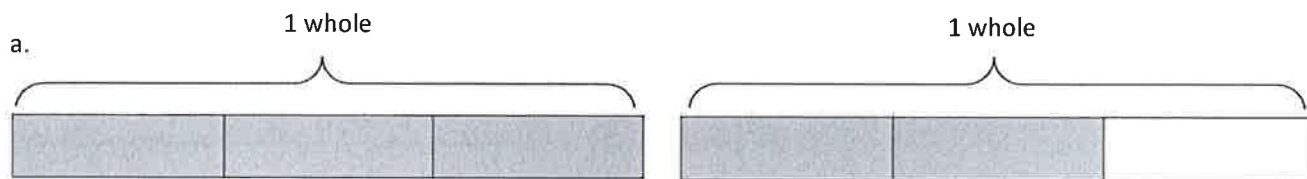


$\frac{5}{6} = 5$  groups of  $\frac{1}{6}$

$\frac{5}{6} = 5 \times \frac{1}{6}$

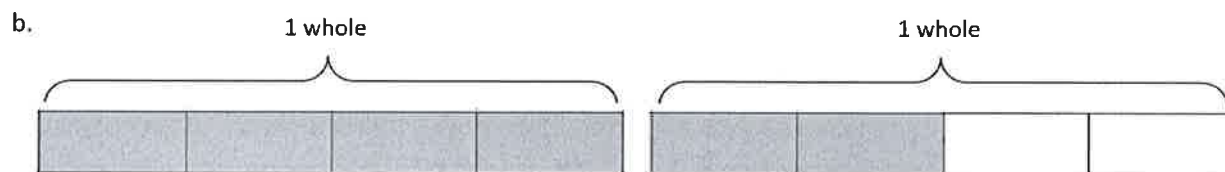


2. Write the following fractions as the **sum** of two **products**.



$$\frac{5}{3} = ( \underline{3} \text{ groups of } \underline{\frac{1}{3}} ) \text{ AND } ( \underline{2} \text{ groups of } \underline{\frac{1}{3}} )$$

$$\frac{5}{3} = ( \underline{3} \times \underline{\frac{1}{3}} ) + ( \underline{2} \times \underline{\frac{1}{3}} )$$



$$\frac{6}{4} = ( \underline{4} \text{ groups of } \underline{\frac{1}{4}} ) \text{ AND } ( \underline{2} \text{ groups of } \underline{\frac{1}{4}} )$$

$$\frac{6}{4} = ( \underline{4 \times \frac{1}{4}} ) + ( \underline{2 \times \frac{1}{4}} )$$

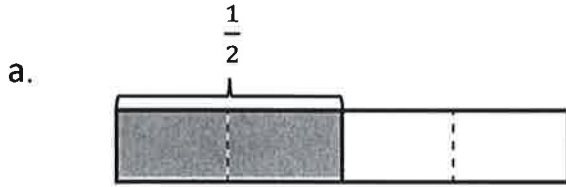
3. Write a number sentence showing the fraction as multiplying the **unit fraction**.

a.  $\frac{4}{5} = \underline{4} \text{ groups of } \underline{\frac{1}{5}} = \underline{4 \times \frac{1}{5}}$

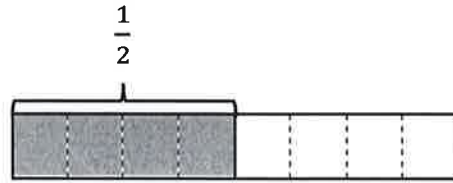
b.  $\frac{5}{8} = \underline{5} \text{ groups of } \underline{\frac{1}{8}} = \underline{5 \times \frac{1}{8}}$

Name Key

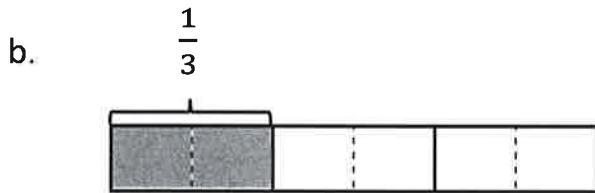
1. The total length of each tape diagram represents 1 whole. Decompose the shaded unit fractions as the sum of smaller unit fractions in at least two different ways.



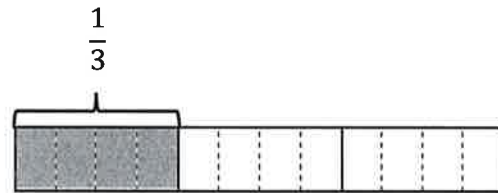
$$\frac{1}{2} = \frac{1}{4} + \frac{1}{4}$$



$$\frac{1}{2} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$$

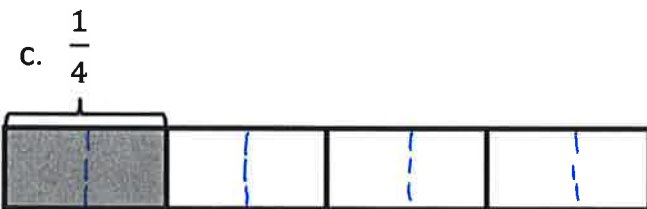


$$\frac{1}{3} = \frac{1}{6} + \frac{1}{6}$$

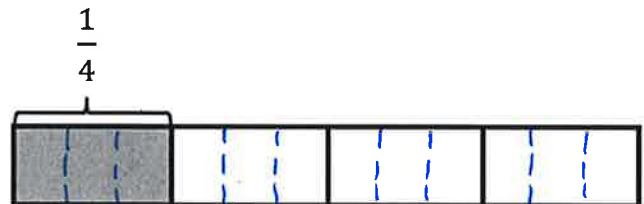


$$\frac{1}{3} = \frac{1}{12} + \frac{1}{12} + \frac{1}{12} + \frac{1}{12}$$

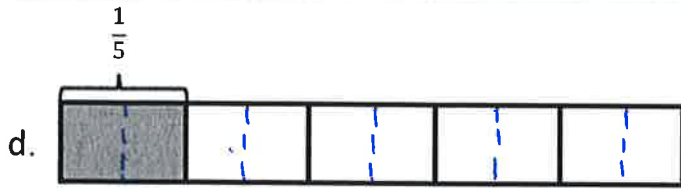
(Draw dotted lines to decompose the pieces.)



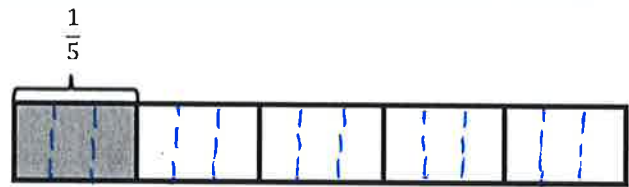
$$\frac{1}{4} = \frac{1}{8} + \frac{1}{8}$$



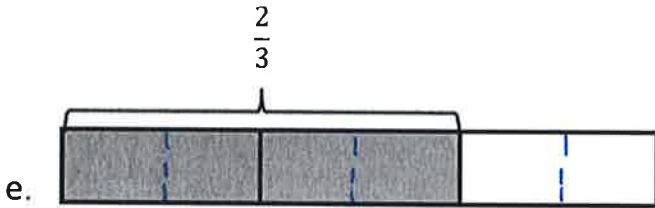
$$\frac{1}{4} = \frac{1}{12} + \frac{1}{12} + \frac{1}{12}$$



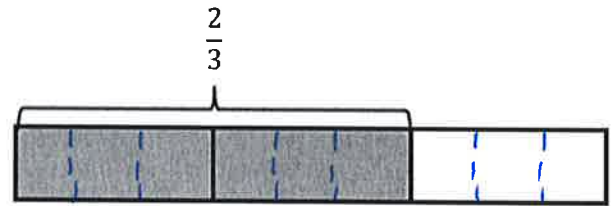
$$\frac{1}{5} = \frac{1}{10} + \frac{1}{10}$$



$$\frac{1}{5} = \frac{1}{15} + \frac{1}{15} + \frac{1}{15}$$



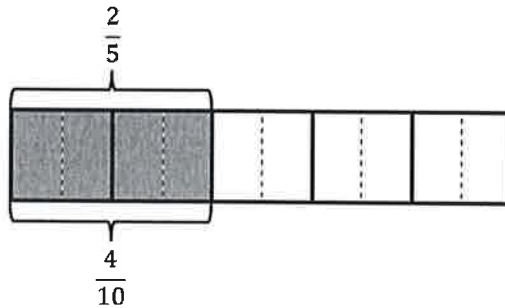
$$\frac{2}{3} = \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6}$$



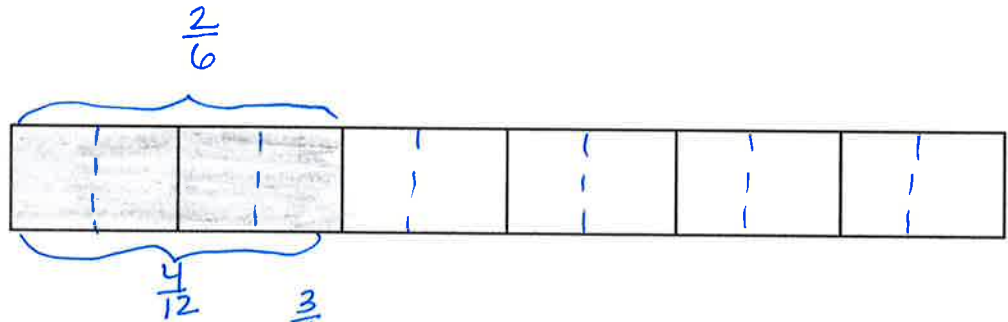
$$\frac{2}{3} = \frac{1}{9} + \frac{1}{9} + \frac{1}{9} + \frac{1}{9} + \frac{1}{9} + \frac{1}{9}$$

2. Shade and label tape diagrams to prove the following statements. The first one has been done for you

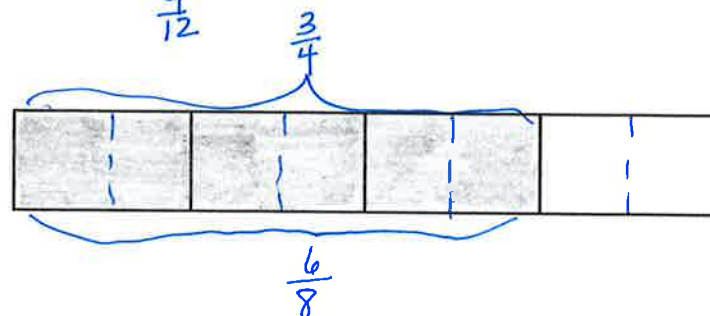
a.  $\frac{2}{5} = \frac{4}{10}$



b.  $\frac{2}{6} = \frac{4}{12}$



c.  $\frac{3}{4} = \frac{6}{8}$

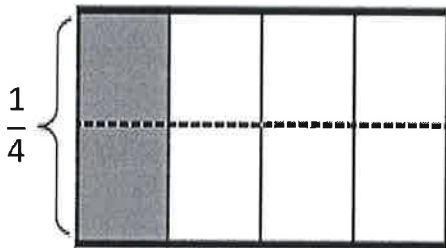


Name Key

1. Decompose each rectangle into the number of rows shown. Write the shaded area as both a sum of unit fractions and as a multiplication sentence.

a. 2 rows

= Equivalent Fractions:  $\frac{1}{4} = \frac{2}{8}$



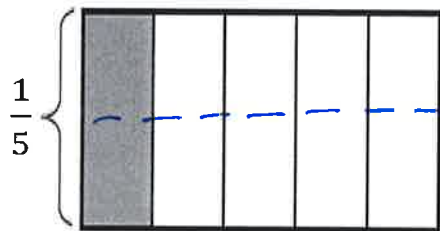
+ Sum of unit fractions:  $\frac{1}{4} = \frac{1}{8} + \frac{1}{8}$

X Multiplication Sentence:

$\frac{1}{4} = 2$  groups of  $\frac{1}{8} \rightarrow \frac{1}{4} = 2 \times \frac{1}{8}$

b. 2 rows

= Equivalent Fractions:  $\frac{1}{5} = \frac{2}{10}$



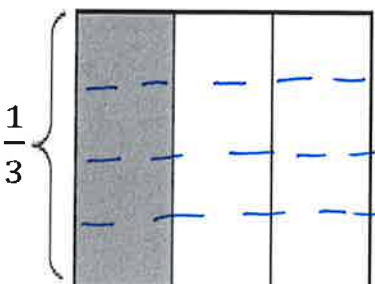
+ Sum of unit fractions:  $\frac{1}{5} = \frac{1}{10} + \frac{1}{10}$

X Multiplication sentence:

$\frac{1}{5} = 2$  groups of  $\frac{1}{10} \rightarrow \frac{1}{5} = 2 \times \frac{1}{10}$

c. 4 rows

= Equivalent Fractions:  $\frac{1}{3} = \frac{4}{12}$



+ Sum of unit fractions:  $\frac{1}{3} = \frac{1}{12} + \frac{1}{12} + \frac{1}{12} + \frac{1}{12}$

X Multiplication sentence:

$\frac{1}{3} = 4$  groups of  $\frac{1}{12} \rightarrow \frac{1}{3} = 4 \times \frac{1}{12}$

2. Write the equivalent fractions as the sum of unit fractions and as multiplication sentences.

a.  $\frac{1}{2} = \frac{3}{6}$

+ Sum of unit fractions:

$$\frac{1}{2} = \frac{\frac{1}{6} + \frac{1}{6} + \frac{1}{6}}{\quad}$$

X Multiplication:

$$\frac{1}{2} = \underline{3} \text{ groups of } \underline{\frac{1}{6}} \quad \longrightarrow \quad \frac{1}{2} = \underline{3} \times \underline{\frac{1}{6}}$$

b.  $\frac{1}{2} = \frac{5}{10}$

+ Sum of unit fractions:

$$\frac{1}{2} = \frac{\frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10}}{\quad}$$

X Multiplication:

$$\frac{1}{2} = \underline{5} \text{ groups of } \underline{\frac{1}{10}} \quad \longrightarrow \quad \frac{1}{2} = \underline{5} \times \underline{\frac{1}{10}}$$

c.  $\frac{1}{3} = \frac{4}{12}$

+ Sum of unit fractions:

$$\frac{1}{3} = \frac{\frac{1}{12} + \frac{1}{12} + \frac{1}{12} + \frac{1}{12}}{\quad}$$

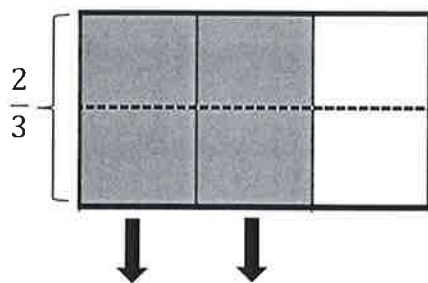
X Multiplication:

$$\frac{1}{3} = \underline{4} \text{ groups of } \underline{\frac{1}{12}} \quad \longrightarrow \quad \frac{1}{3} = \underline{4} \times \underline{\frac{1}{12}}$$

Name Key

1. Decompose each rectangle into the number of pieces shown. Write the equivalent fractions as both a sum of unit fractions and as a multiplication sentence.

a. Sixths



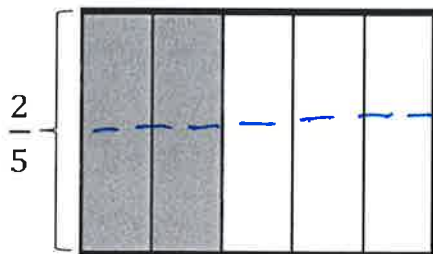
$$\frac{2}{3} = \left(\frac{1}{6} + \frac{1}{6}\right) + \left(\frac{1}{6} + \frac{1}{6}\right) = \frac{4}{6}$$

= Equivalent Fractions:  $\frac{2}{3} = \frac{4}{6}$

X Multiplication Sentence:

$$\frac{2}{3} = 4 \times \frac{1}{6}$$

b. Tenths

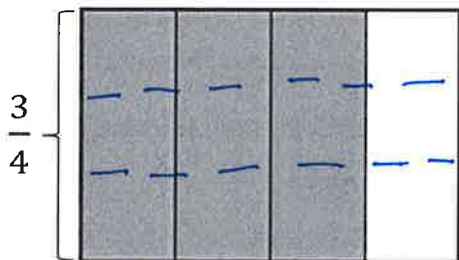


= Equivalent Fractions:  $\frac{2}{5} = \frac{4}{10}$

X Multiplication sentence:  $\frac{2}{5} = 4 \times \frac{1}{10}$

$$\frac{2}{5} = \left(\frac{1}{10} + \frac{1}{10}\right) + \left(\frac{1}{10} + \frac{1}{10}\right) = \frac{4}{10}$$

c. Twelfths

= Equivalent Fractions:  $\frac{3}{4} = \frac{9}{12}$ X Multiplication sentence:  $\frac{3}{4} = 9 \times \frac{1}{12}$ 

$$\frac{3}{4} = \left( \frac{1}{12} + \frac{1}{12} + \frac{1}{12} \right) + \left( \frac{1}{12} + \frac{1}{12} + \frac{1}{12} \right) + \left( \frac{1}{12} + \frac{1}{12} + \frac{1}{12} \right) = \frac{9}{12}$$

2. Use fraction pieces to show the equivalent fractions. Write the equivalent fractions as the sum of unit fractions and as multiplication sentences.

a.  $\frac{3}{5} = \frac{6}{10}$

$$\frac{3}{5} = \left( \frac{1}{10} + \frac{1}{10} \right) + \left( \frac{1}{10} + \frac{1}{10} \right) + \left( \frac{1}{10} + \frac{1}{10} \right) = \frac{6}{10}$$

X Multiplication sentence:  $\frac{3}{5} = 6 \times \frac{1}{10}$

b.  $\frac{3}{4} = \frac{6}{8}$

$$\frac{3}{4} = \left( \frac{1}{8} + \frac{1}{8} \right) + \left( \frac{1}{8} + \frac{1}{8} \right) + \left( \frac{1}{8} + \frac{1}{8} \right) = \frac{6}{8}$$

X Multiplication sentence:  $\frac{3}{4} = 6 \times \frac{1}{8}$

Make your own equivalent fraction:

c.  $\frac{2}{3} = \frac{4}{6}$

possible answer

$$\frac{2}{3} = \left( \frac{1}{6} + \frac{1}{6} \right) + \left( \frac{1}{6} + \frac{1}{6} \right) = \frac{4}{6}$$

X Multiplication sentence:  $\frac{2}{3} = 4 \times \frac{1}{6}$



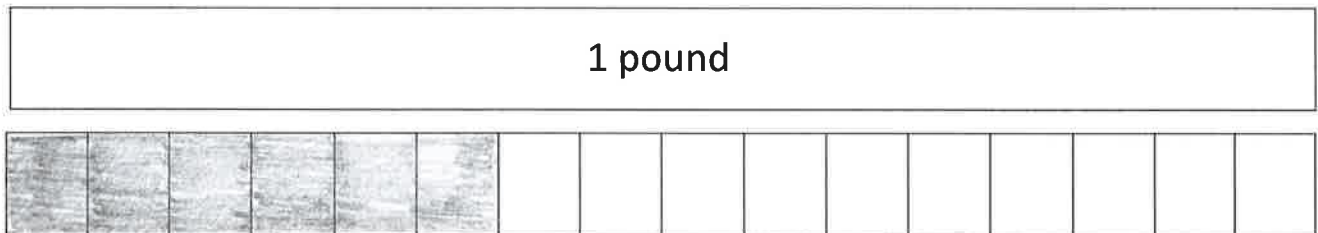
Name Key

1. Complete the conversion chart.

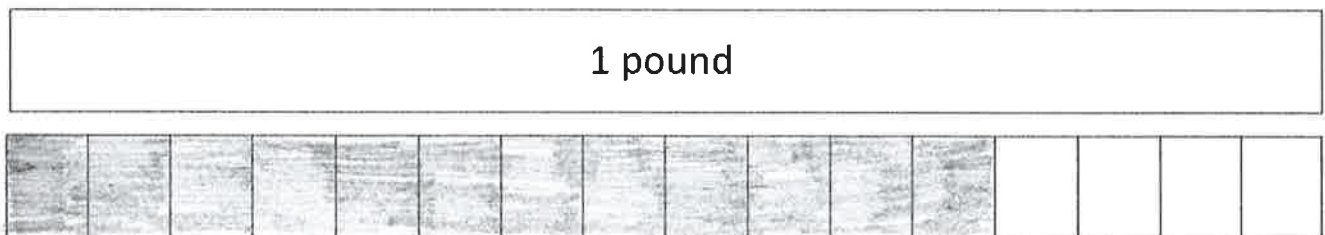
Pounds	Ounces
1	16
2	32
3	48
5	80
10	160
100	1,600

2. Shade in the tape diagrams to show how ounces relate to pounds.

a. 6 ounces =  $\frac{6}{16}$  of a pound

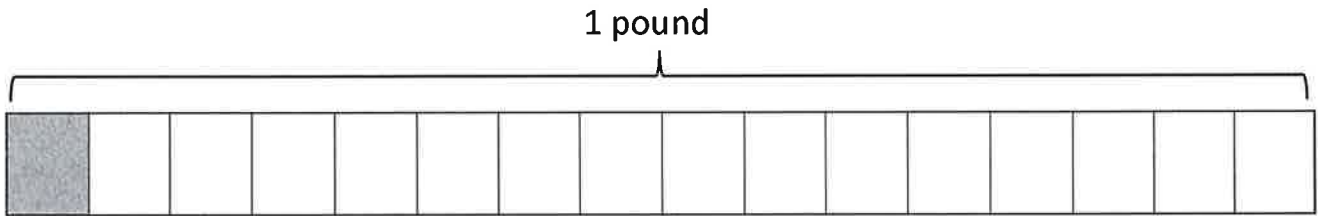


a. 12 ounces =  $\frac{12}{16}$  of a pound

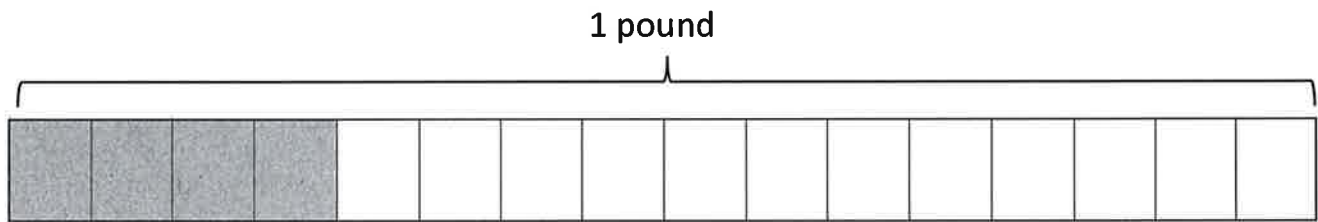


3. Show the shaded portion as ounces in unit form AND as a fraction of a pound.

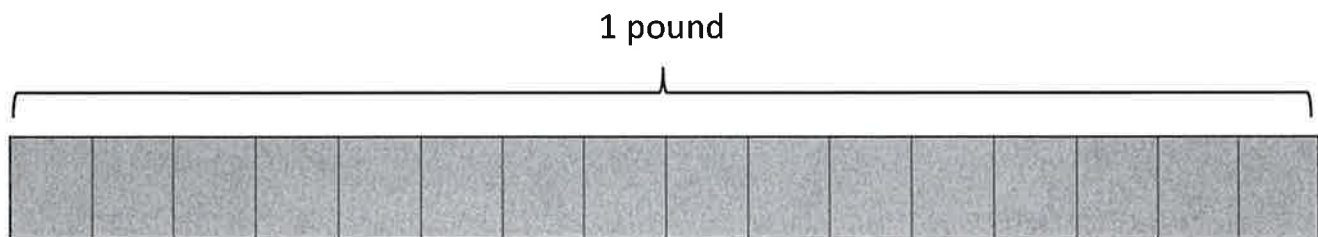
a. Unit form: 1 ounce      Fraction of a pound:  $\frac{1}{16}$



b. Unit form: 4 ounces      Fraction of a pound:  $\frac{4}{16}$



c. Unit form: 16 ounces      Fraction of a pound:  $\frac{16}{16}$



Name Key

1. Complete the conversion charts.

Gallons	Quarts
1	4
2	8
3	12
5	20
10	40

Gallons	Pints
1	8
2	16
3	24
5	40
10	80

Gallons	Cups
1	16
2	32
3	48
5	80
10	160

Quarts	Cups
1	4
2	8
3	12
5	20
10	40

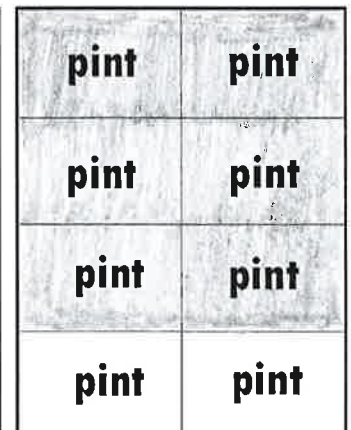
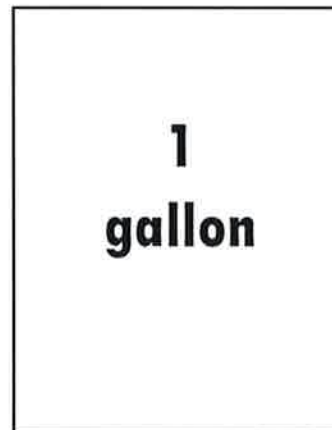
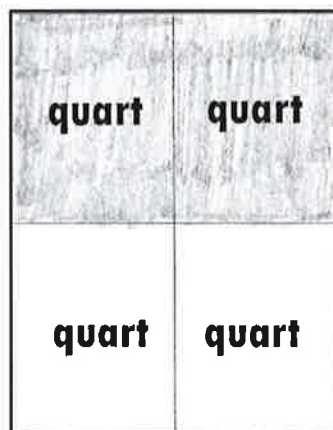
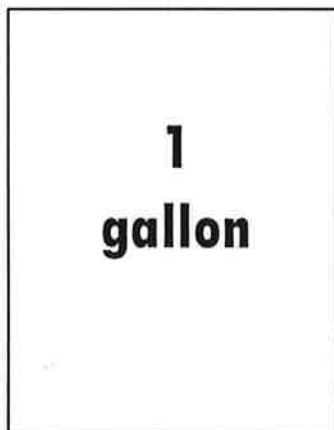
Quarts	Pints
1	2
2	4
3	6
5	10
10	20

Pints	Cups
1	2
2	4
3	6
5	10
10	20

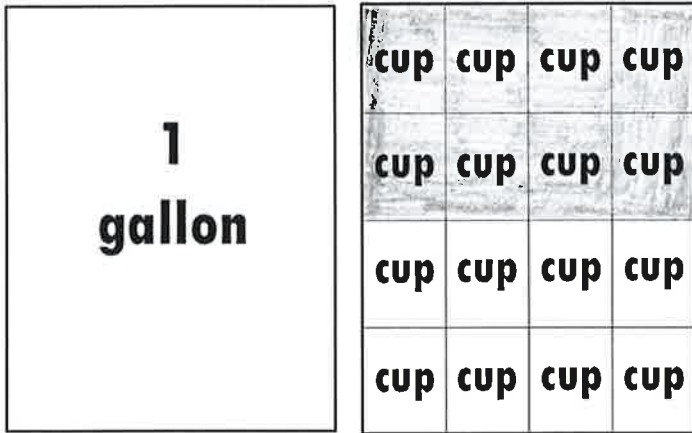
2. Shade in the area models to show how capacity relates to fractions.

a. 2 quarts =  $\frac{2}{4}$  of a gallon

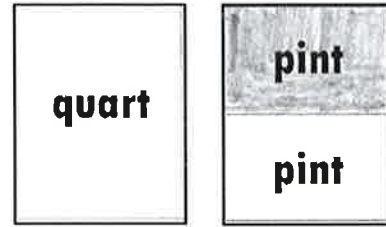
b. 6 pints =  $\frac{6}{8}$  of a gallon



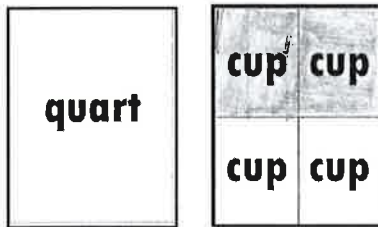
c. 8 cups =  $\frac{8}{16}$  of a gallon



d. 1 pint =  $\frac{1}{2}$  of a quart



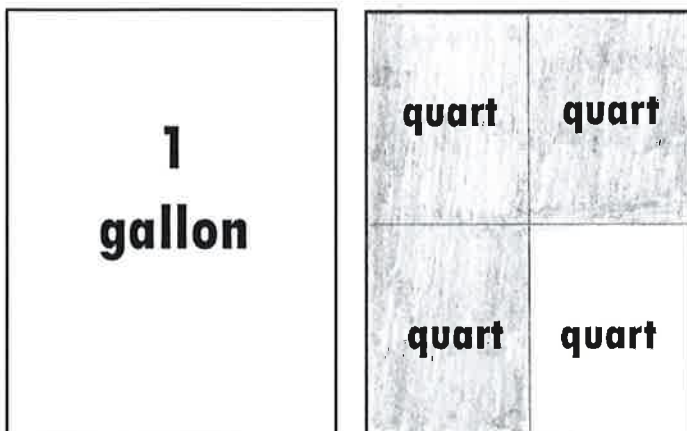
e. 2 cups =  $\frac{2}{4}$  of a quart



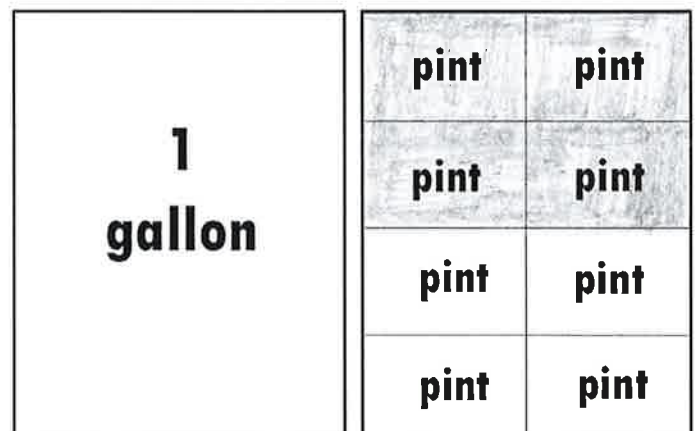
f. 1 cup =  $\frac{1}{2}$  of a pint



g. 3 quarts =  $\frac{3}{4}$  of a gallon

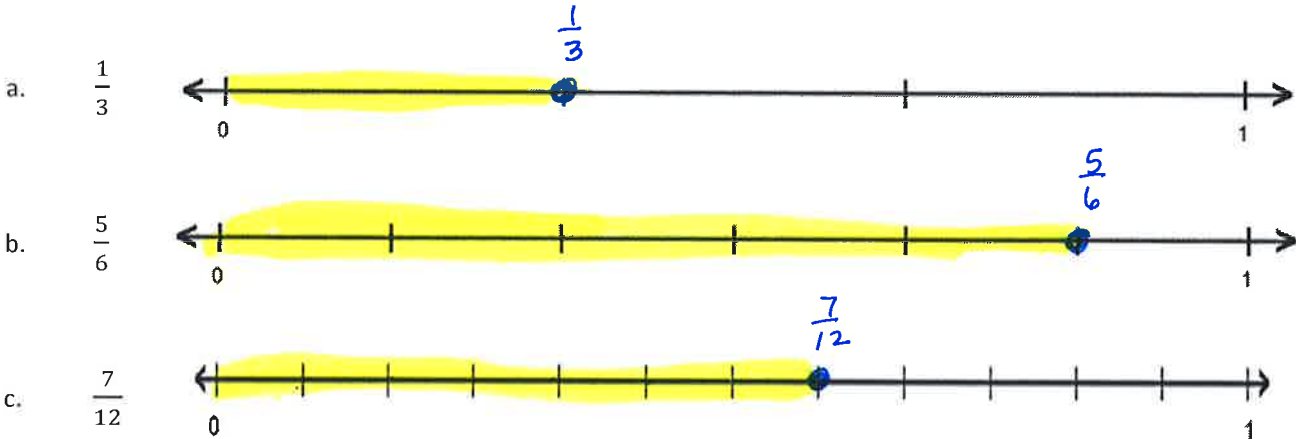


h. 4 pints =  $\frac{4}{8}$  of a gallon



Name Key

1. Plot the following points on the number lines.

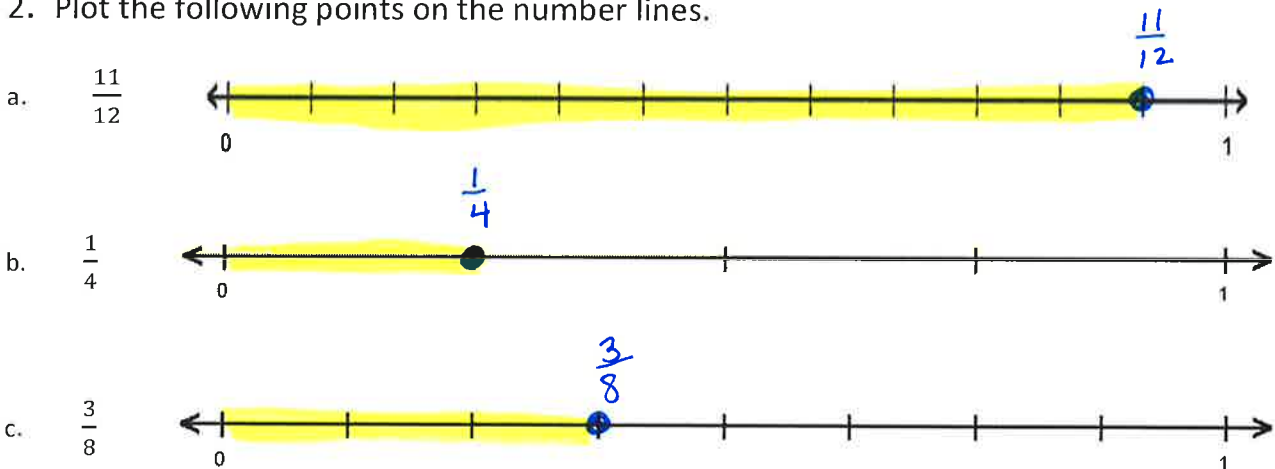


d. Use the number lines to compare the fractions by writing  $>$ ,  $<$ , or  $=$ .

a.  $\frac{7}{12} > \frac{1}{3}$

b.  $\frac{7}{12} < \frac{5}{6}$

2. Plot the following points on the number lines.

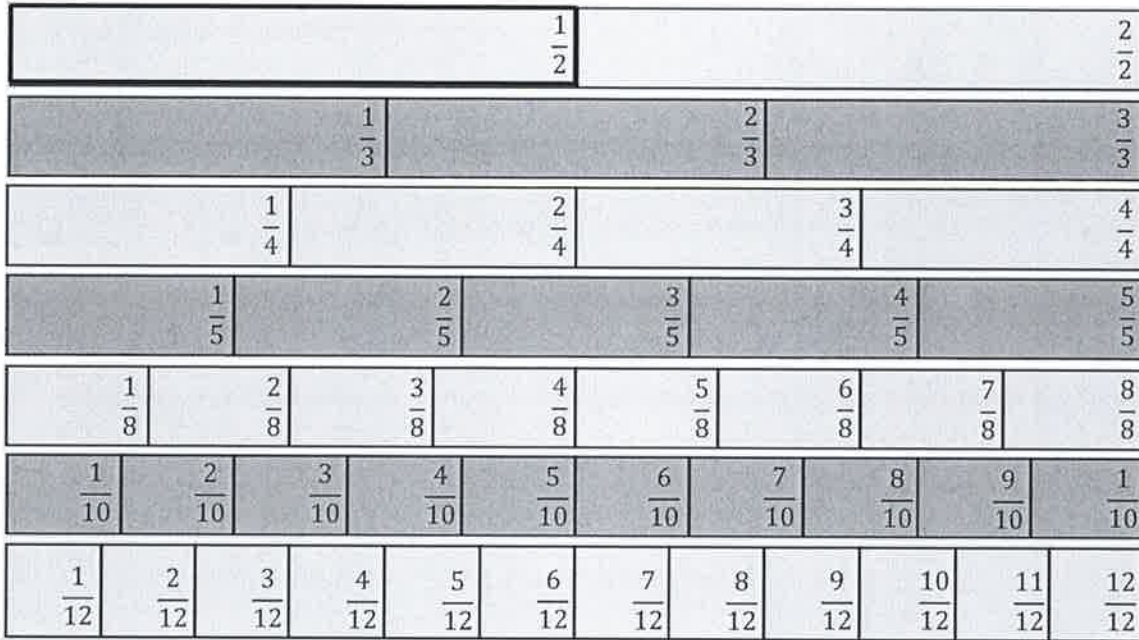


d. Select two fractions above and use the number lines to compare them by writing  $>$ ,  $<$ , or  $=$ .

$\frac{1}{4} < \frac{3}{8}$

possible answer

3. Use the benchmark of  $\frac{1}{2}$  to compare the fractions given below by writing =, > or <.



a.  $\frac{1}{2}$  <  $\frac{3}{4}$

b.  $\frac{1}{2}$  <  $\frac{7}{8}$

c.  $\frac{1}{2}$  >  $\frac{2}{5}$

d.  $\frac{9}{10}$  >  $\frac{1}{2}$

e.  $\frac{2}{4}$  =  $\frac{1}{2}$

f.  $\frac{1}{3}$  <  $\frac{1}{2}$

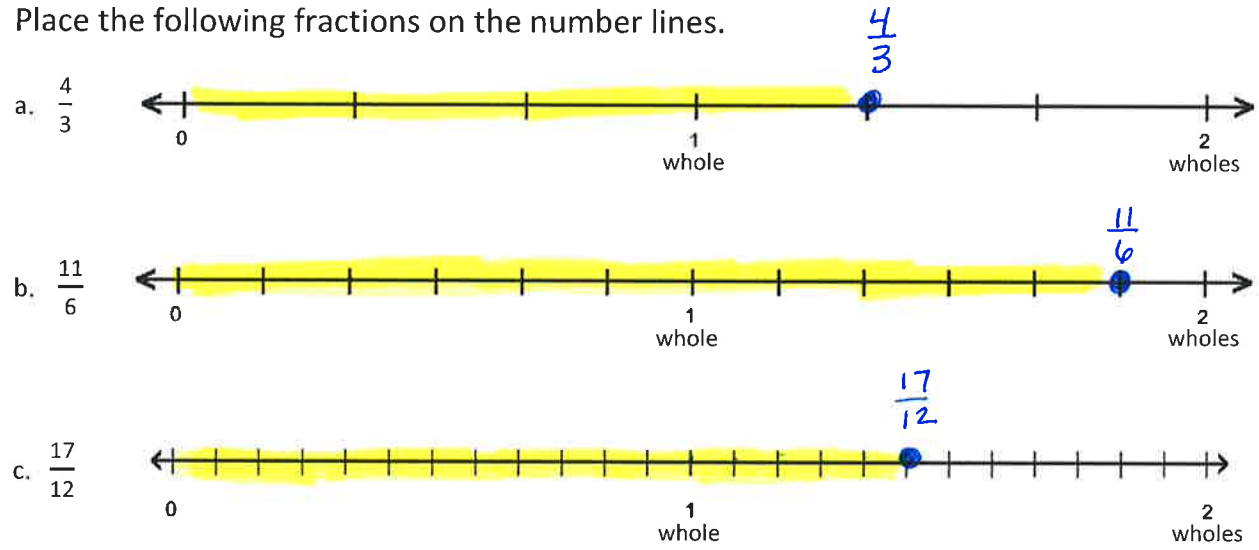
g.  $\frac{1}{2}$  =  $\frac{5}{10}$

h.  $\frac{11}{12}$  >  $\frac{1}{2}$

i.  $\frac{2}{3}$  >  $\frac{1}{2}$

Name Key

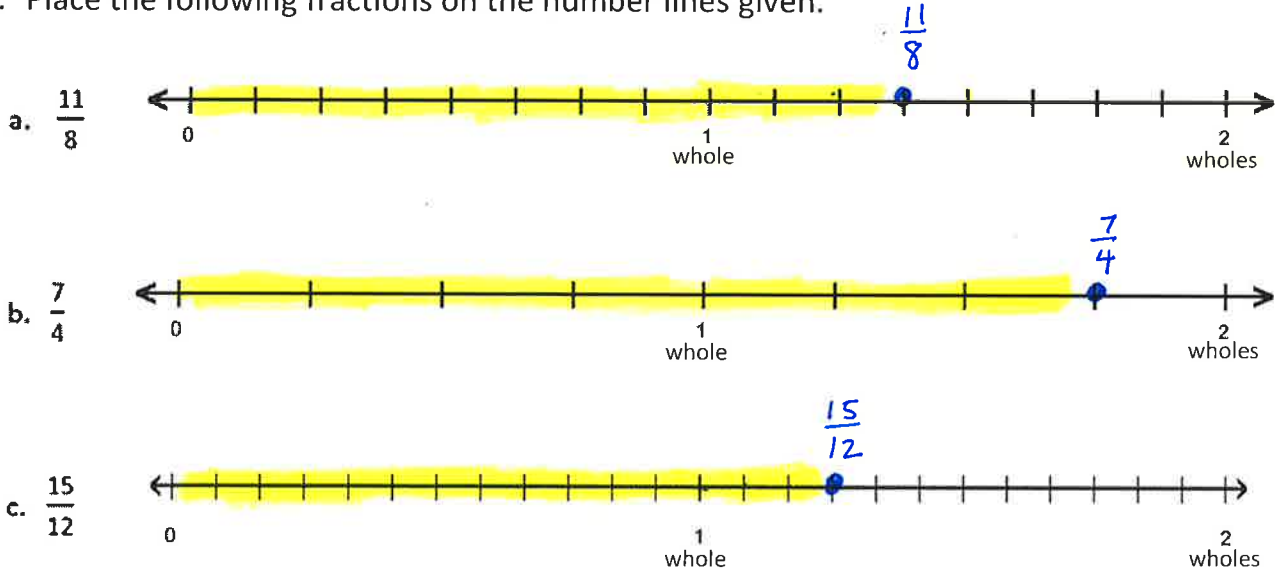
1. Place the following fractions on the number lines.



2. Use the number lines in Problem 1 to compare the fractions by writing  $>$ ,  $<$ , or  $=$ .

a.  $1\frac{5}{6} > 1\frac{5}{12}$       b.  $1\frac{1}{3} < 1\frac{5}{12}$

3. Place the following fractions on the number lines given.



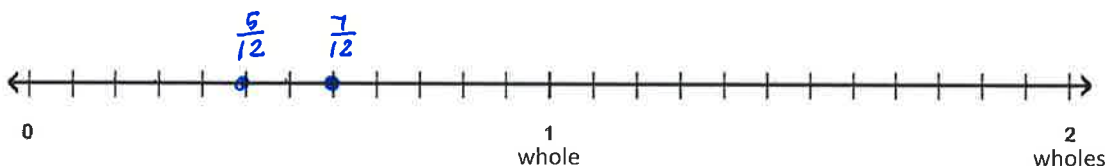
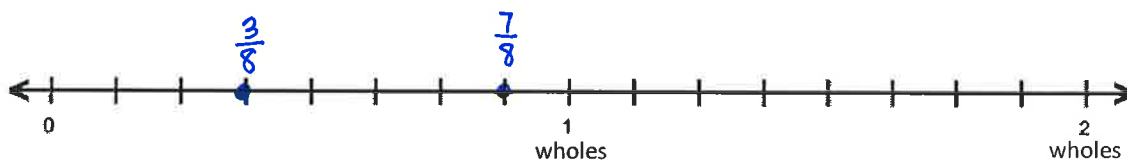
4. Use the number line in Problem 3 to explain whether  $\frac{11}{8}$  or  $\frac{15}{12}$  is greater.

$\frac{11}{8}$  is greater than  $\frac{15}{12}$  because it is farther to the right from zero.

5. Use the number lines to compare the fractions. Write  $>$  or  $<$  on the lines.

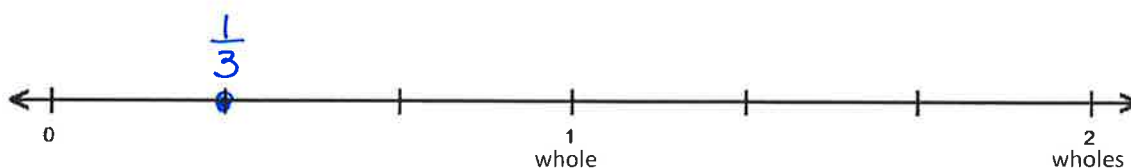
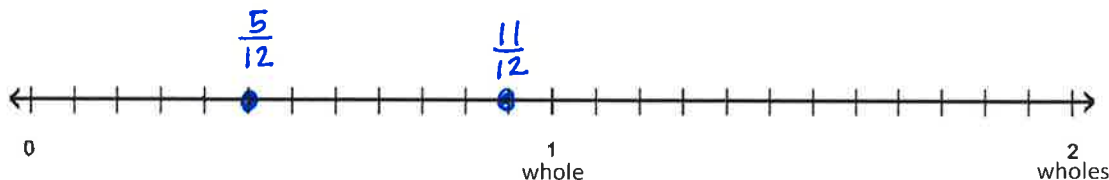
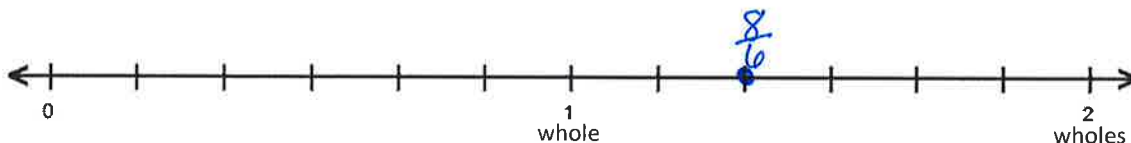
a.  $\frac{3}{8} < \frac{7}{12}$

b.  $\frac{5}{12} < \frac{7}{8}$



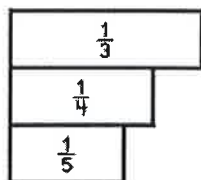
c.  $\frac{8}{6} > \frac{11}{12}$

d.  $\frac{5}{12} > \frac{1}{3}$





Name Key



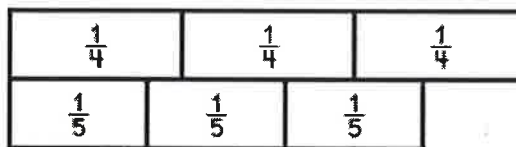
As the number in the denominator gets bigger, the size of the fraction gets smaller.

1. Compare the pairs of fractions by reasoning about the size of the units. Use  $>$ ,  $<$ , or  $=$ .

a. 1 fourth  $>$  1 fifth



b. 3 fourths  $>$  3 fifths



c. 1 tenth  $>$  1 twelfth

d. 7 tenths  $>$  7 twelfths

2. Compare by reasoning about the following pairs of fractions with the same numerators. Use  $>$ ,  $<$ , or  $=$ .

a. Since  $\frac{1}{5}$   $>$   $\frac{1}{6}$  then  $\frac{4}{5}$   $>$   $\frac{4}{6}$

b. Since  $\frac{1}{4}$   $<$   $\frac{1}{3}$  then  $\frac{2}{4}$   $<$   $\frac{2}{3}$

c. Since  $\frac{1}{8}$   $<$   $\frac{1}{4}$  then  $\frac{3}{8}$   $<$   $\frac{3}{4}$

3. Shade in two tape diagrams to model each pair of fractions.  
Use  $>$ ,  $<$ , or  $=$  to compare.

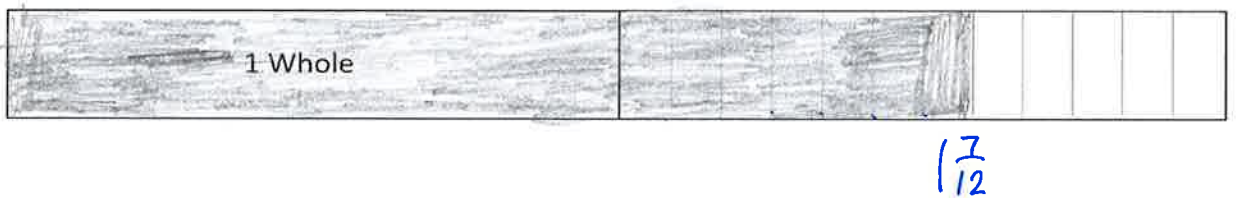
a.  $\frac{2}{3} < \frac{5}{6}$



b.  $\frac{3}{4} < \frac{7}{8}$



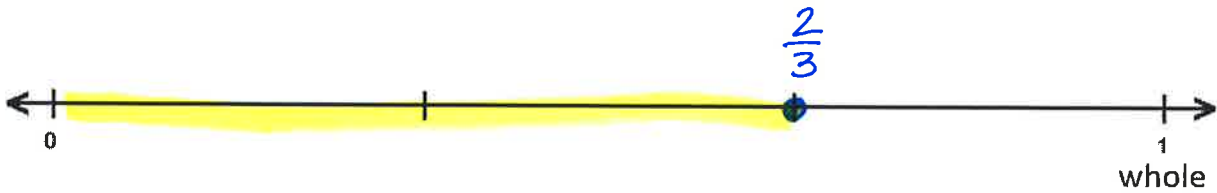
c.  $1\frac{3}{4} > 1\frac{7}{12}$



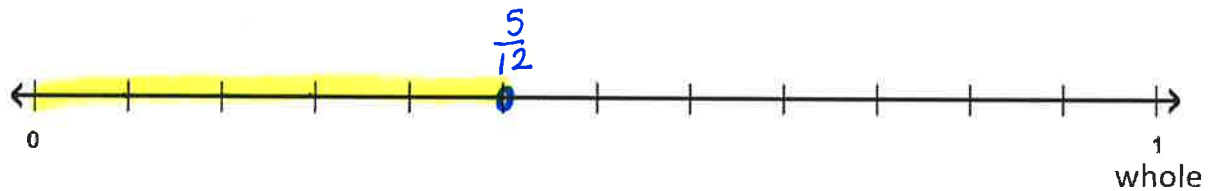
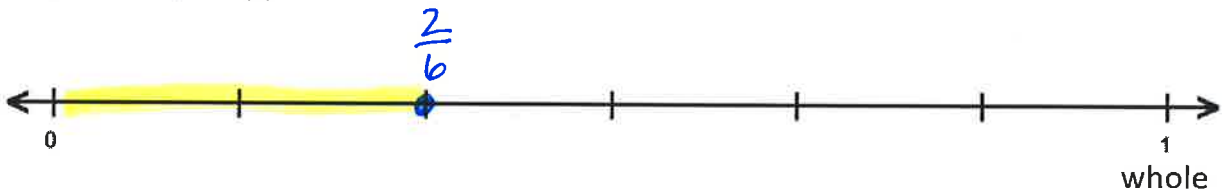
4. Plot fractions on the number line to model each pair of fractions.

Use  $>$ ,  $<$ , or  $=$  to compare.

a.  $\frac{2}{3}$   $<$   $\frac{5}{6}$

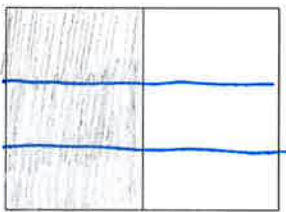
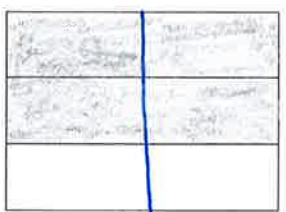

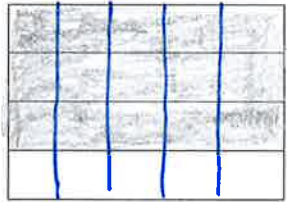

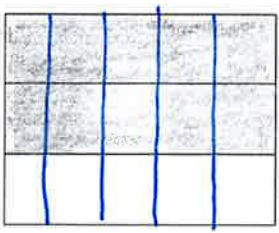
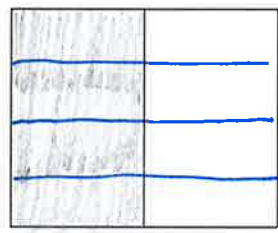



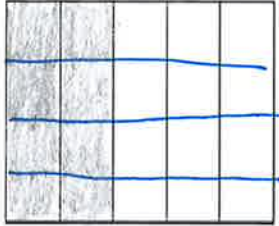
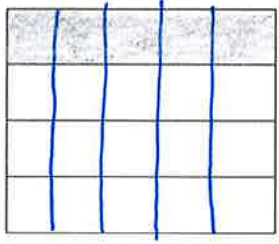


b.  $\frac{2}{6}$   $<$   $\frac{5}{12}$



Name \_\_\_\_\_

1. Draw an area model for each pair of fractions to make like denominators.  
Compare the two fractions by writing  $>$ ,  $<$ , or  $=$  on the line.

<p>a. <math>\frac{1}{2}</math> _____ <math>&lt;</math> _____ <math>\frac{2}{3}</math></p> <p><math>\frac{1 \times 3}{2 \times 3} = \frac{3}{6}</math></p>  <p><math>\frac{2 \times 2}{3 \times 2} = \frac{4}{6}</math></p> 	<p>b. <math>\frac{4}{5}</math> _____ <math>&gt;</math> _____ <math>\frac{3}{4}</math></p> <p><math>\frac{4}{5} \times \frac{4}{4} = \frac{16}{20}</math></p>  <p><math>\frac{3}{4} \times \frac{5}{5} = \frac{15}{20}</math></p> 
<p>c. <math>\frac{3}{5}</math> _____ <math>&lt;</math> _____ <math>\frac{2}{3}</math></p> <p><math>\frac{3}{5} \times \frac{3}{3} = \frac{9}{15}</math></p>  <p><math>\frac{2}{3} \times \frac{5}{5} = \frac{10}{15}</math></p> 	<p>d. <math>\frac{1}{2}</math> _____ <math>=</math> _____ <math>\frac{2}{4}</math></p> <p><math>\frac{1}{2} \times \frac{4}{4} = \frac{4}{8}</math></p>  <p><math>\frac{2}{4} \times \frac{2}{2} = \frac{4}{8}</math></p> 

<p>e. <math>\frac{2}{5} &gt; \frac{1}{4}</math></p> <p><math>\frac{2}{5} \times \frac{4}{4} = \frac{8}{20}</math></p>  <p><math>\frac{1}{4} \times \frac{5}{5} = \frac{5}{20}</math></p> 	<p>f. <math>\frac{2}{3} &lt; \frac{3}{4}</math></p> <p><math>\frac{2}{3} \times \frac{4}{4} = \frac{8}{12}</math></p>  <p><math>\frac{3}{4} \times \frac{3}{3} = \frac{9}{12}</math></p> 
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2. Rename the fractions, as needed in order to compare by writing  $>$ ,  $<$ , or  $=$ .

a.  $\frac{3}{5} < \frac{5}{6}$

$\frac{3 \times 6}{5 \times 6} = \frac{18}{30}$       $\frac{5 \times 5}{6 \times 5} = \frac{25}{30}$

b.  $\frac{2}{6} < \frac{3}{8}$

$\frac{2 \times 8}{6 \times 8} = \frac{16}{48}$       $\frac{3 \times 6}{8 \times 6} = \frac{18}{48}$

c.  $\frac{7}{5} > \frac{10}{8}$

$\frac{7 \times 8}{5 \times 8} = \frac{56}{40}$       $\frac{10 \times 5}{8 \times 5} = \frac{50}{40}$

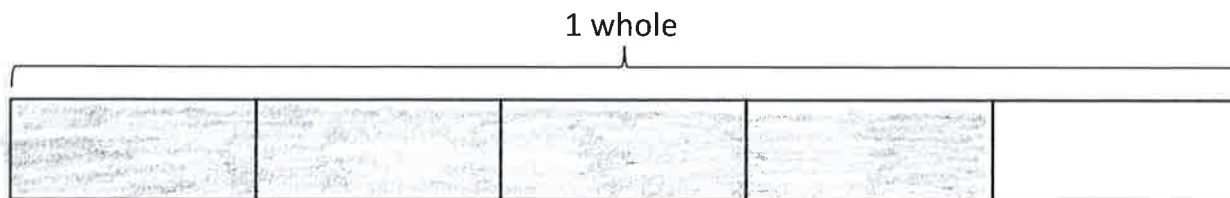
d.  $\frac{4}{3} > \frac{6}{5}$

$\frac{4 \times 5}{3 \times 5} = \frac{20}{15}$       $\frac{6 \times 3}{5 \times 3} = \frac{18}{15}$

Name Key

1. Shade in fractions to find the sum.

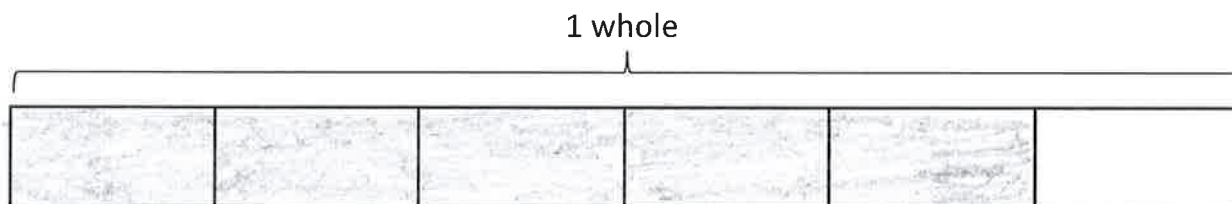
a. 3 fifths + 1 fifth =  $\frac{4}{5}$



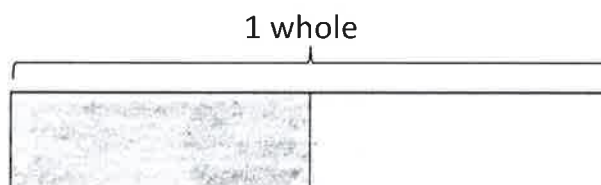
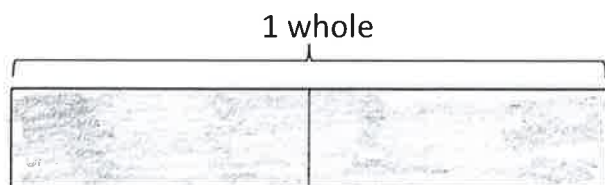
b. 1 fourth + 2 fourths =  $\frac{3}{4}$



c.  $\frac{2}{6} + \frac{3}{6} =$   $\frac{5}{6}$

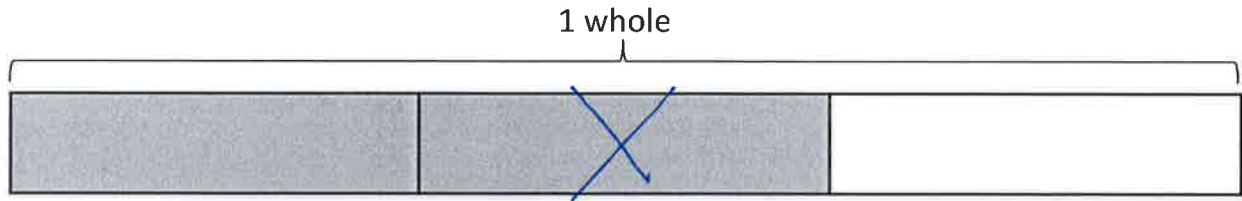


d.  $\frac{2}{2} + \frac{1}{2} =$   $\frac{3}{2}$  or  $1\frac{1}{2}$

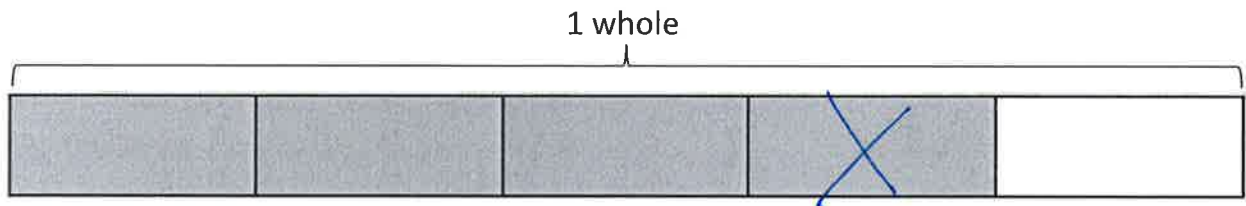


2. Cross off fractions to find the difference.

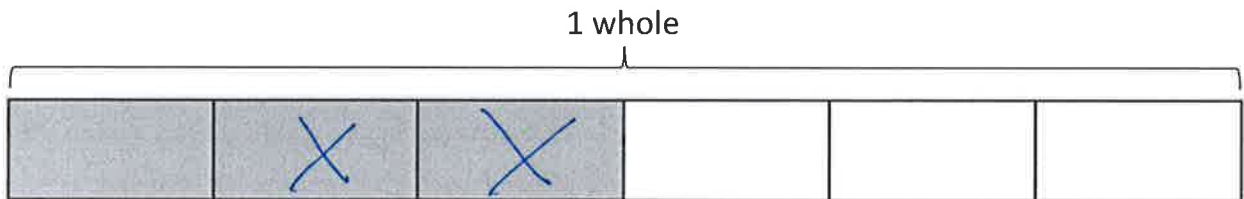
a. 2 thirds - 1 third =  $\frac{1}{3}$



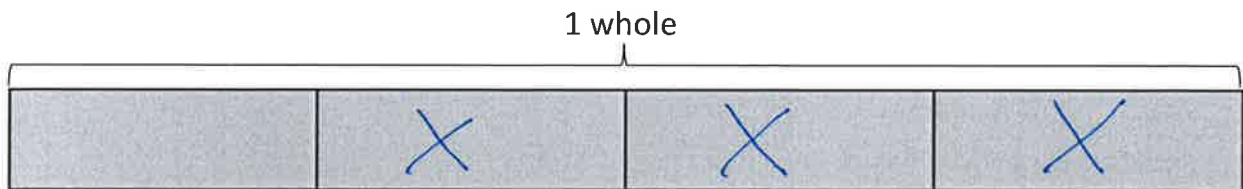
b. 4 fifths - 1 fifth =  $\frac{3}{5}$



c.  $\frac{3}{6} - \frac{2}{6} = \frac{1}{6}$



d.  $\frac{4}{4} - \frac{3}{4} = \frac{1}{4}$



Name Key

Date \_\_\_\_\_

1. Solve. Write the difference in unit form.

a. 3 fifths – 1 fifth =

2 fifths

b. 5 fifths – 3 fifths =

2 fifths

c. 3 halves – 2 halves =

1 half

d. 6 fourths – 3 fourths =

3 fourths

2. Solve.

a.  $\frac{5}{6} - \frac{3}{6} = \underline{\frac{2}{6}}$

b.  $\frac{6}{8} - \frac{4}{8} = \underline{\frac{2}{8}}$

c.  $\frac{3}{10} - \frac{3}{10} = \underline{\frac{0}{10}}$

d.  $\frac{5}{5} - \frac{4}{5} = \underline{\frac{1}{5}}$

e.  $\frac{5}{4} - \frac{4}{4} = \underline{\frac{1}{4}}$

f.  $\frac{5}{4} - \frac{3}{4} = \underline{\frac{2}{4}}$

3. Solve. Write the sum in unit form.

a. 2 fourths + 1 fourth =

3 fourths

b. 4 fifths + 3 fifths =

7 fifths



4. Solve.

a.  $\frac{2}{8} + \frac{5}{8} = \underline{\frac{7}{8}}$

b.  $\frac{4}{12} + \frac{8}{12} = \underline{\frac{12}{12}}$

c.  $\frac{2}{5} + \frac{4}{5} = \underline{\frac{6}{5}}$

d.  $\frac{4}{4} + \frac{3}{4} = \underline{\frac{7}{4}}$

e.  $\frac{6}{9} + \frac{2}{9} = \underline{\frac{8}{9}}$

f.  $\frac{7}{10} + \frac{3}{10} = \underline{\frac{10}{10}}$

g.  $\frac{5}{6} + \frac{7}{6} = \underline{\frac{12}{6}}$

h.  $\frac{2}{8} + \frac{5}{8} = \underline{\frac{7}{8}}$

5. Put a box around the sums above that are equal to 1 whole.

6. Circle the sums above that are greater than 1 whole.

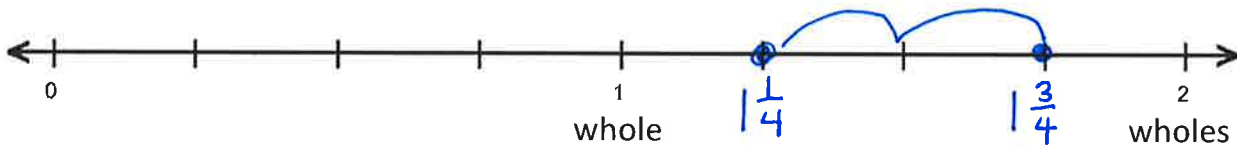
Name Key

1. Use the following three fractions to write two addition and two subtraction number sentences.

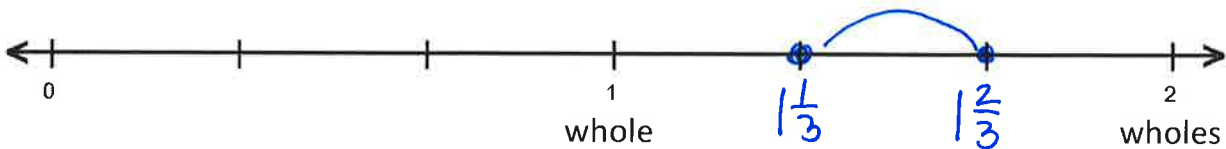
<p>a. <math>\frac{8}{5}, \frac{2}{5}, \frac{10}{5}</math></p> $\frac{8}{5} + \frac{2}{5} = \frac{10}{5}$ $\frac{2}{5} + \frac{8}{5} = \frac{10}{5}$ $\frac{10}{5} - \frac{8}{5} = \frac{2}{5}$ $\frac{10}{5} - \frac{2}{5} = \frac{8}{5}$	<p>b. <math>\frac{15}{8}, \frac{7}{8}, \frac{8}{8}</math></p> $\frac{7}{8} + \frac{8}{8} = \frac{15}{8}$ $\frac{8}{8} + \frac{7}{8} = \frac{15}{8}$ $\frac{15}{8} - \frac{7}{8} = \frac{8}{8}$ $\frac{15}{8} - \frac{8}{8} = \frac{7}{8}$
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2. Find the sum by adding on the number line.

a.  $1\frac{1}{4} + \frac{2}{4} = \underline{1\frac{3}{4}}$

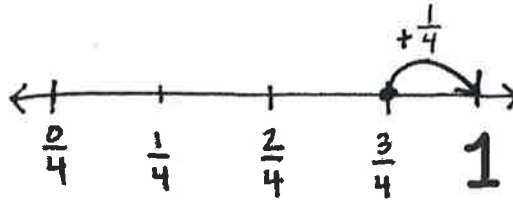


b.  $1\frac{1}{3} + \frac{1}{3} = \underline{1\frac{2}{3}}$

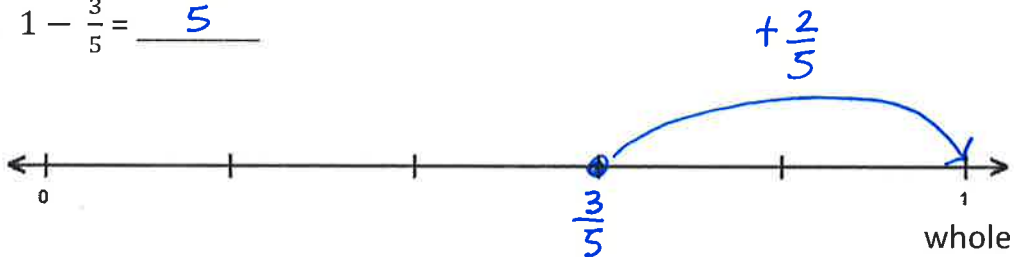


3. Find the difference by counting up on the number line.

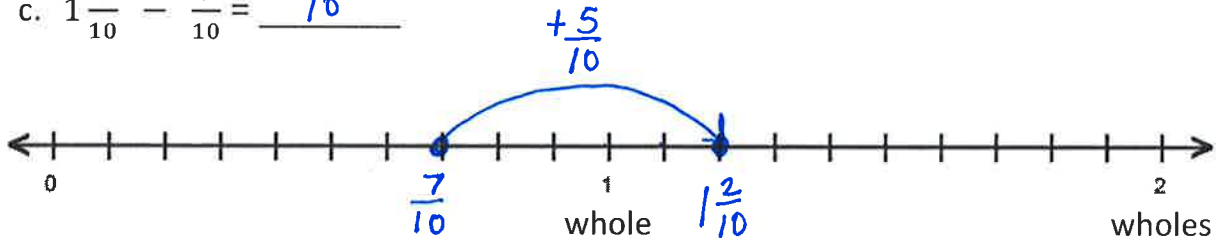
a.  $1 - \frac{3}{4} = \underline{\frac{1}{4}}$



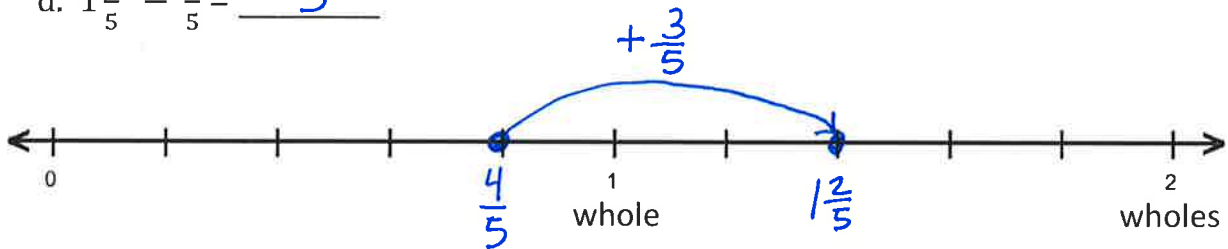
b.  $1 - \frac{3}{5} = \underline{\frac{2}{5}}$



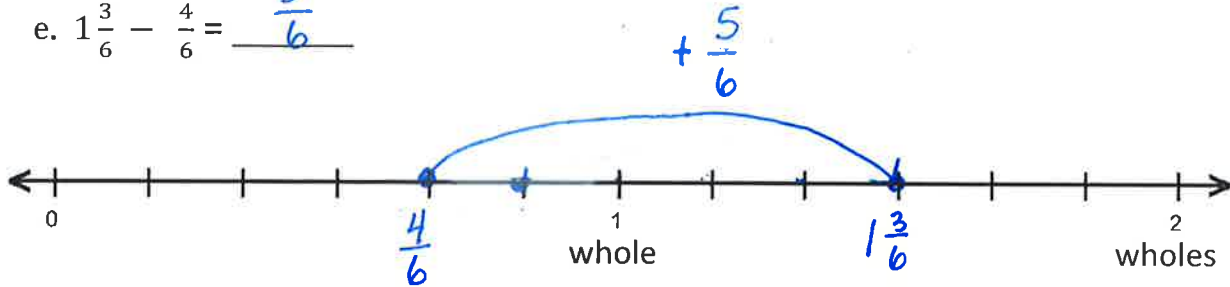
c.  $1\frac{2}{10} - \frac{7}{10} = \underline{\frac{5}{10}}$



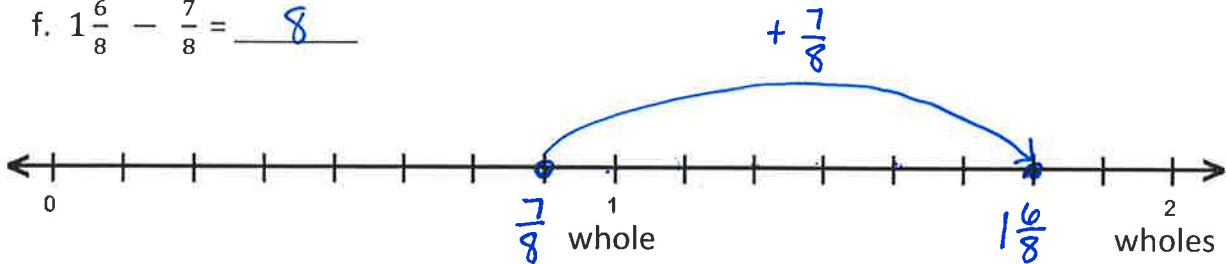
d.  $1\frac{2}{5} - \frac{4}{5} = \underline{\frac{3}{5}}$



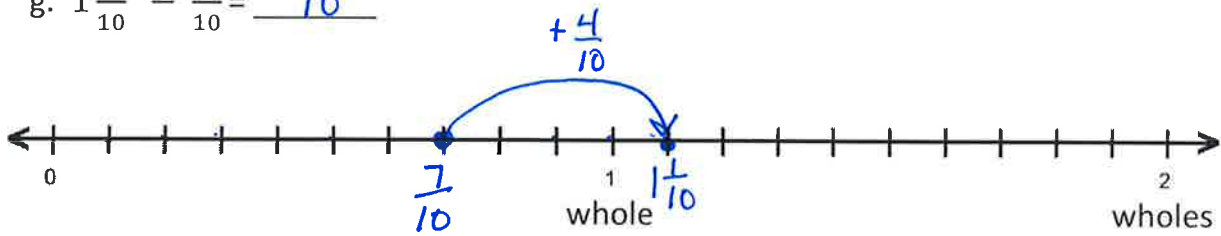
e.  $1\frac{3}{6} - \frac{4}{6} = \underline{\frac{5}{6}}$



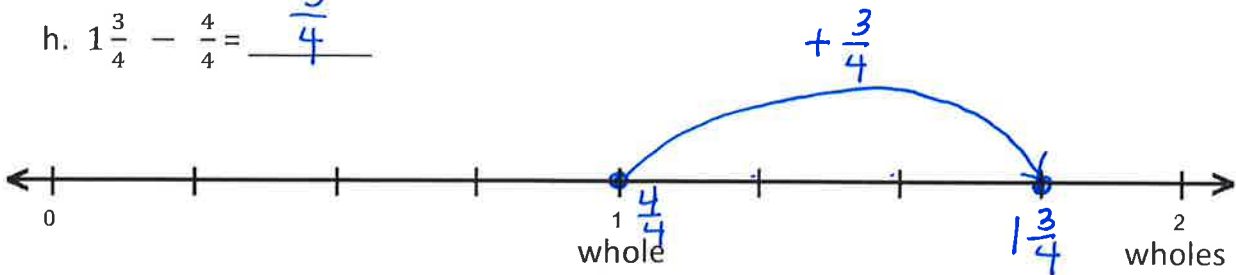
f.  $1\frac{6}{8} - \frac{7}{8} = \underline{\frac{7}{8}}$



g.  $1\frac{1}{10} - \frac{7}{10} = \underline{\frac{4}{10}}$



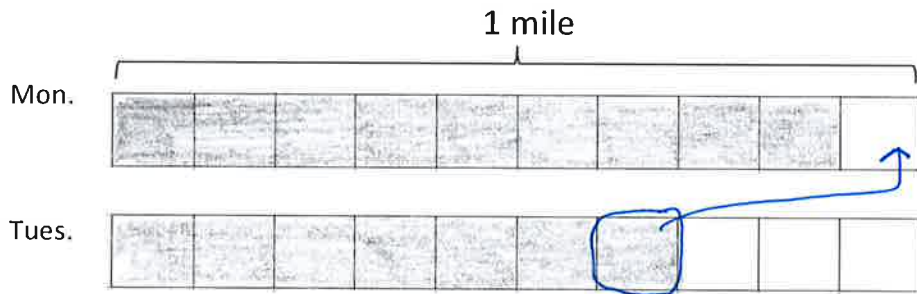
h.  $1\frac{3}{4} - \frac{4}{4} = \underline{\frac{3}{4}}$



Name Key

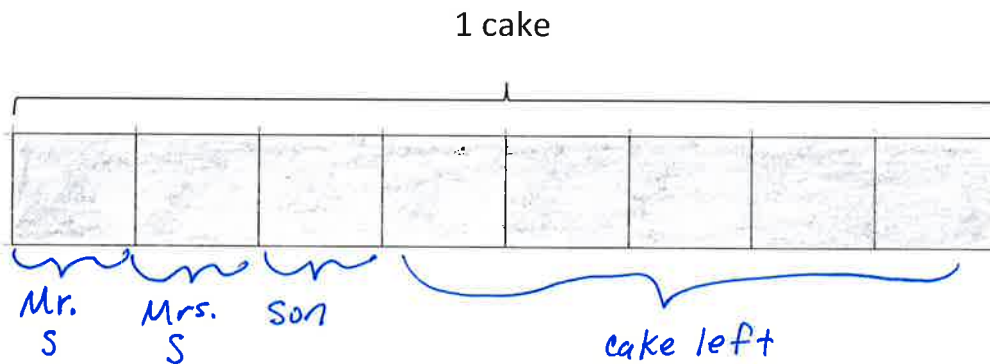
Shade in tape diagrams to solve.

1. Sue ran  $\frac{9}{10}$  mile on Monday and  $\frac{7}{10}$  mile on Tuesday. How many miles did Sue run in the 2 days?



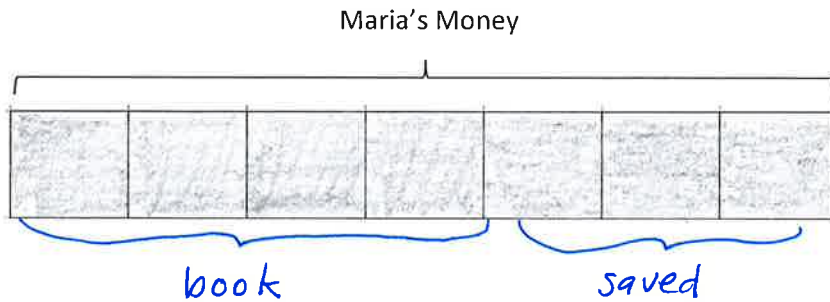
Sue ran  $1\frac{6}{10}$  miles in the 2 days.

2. Mr. Salazar cut his son's birthday cake into 8 equal pieces. Mr. Salazar, Mrs. Salazar, and the birthday boy each ate 1 piece of cake. What fraction of the cake was left?



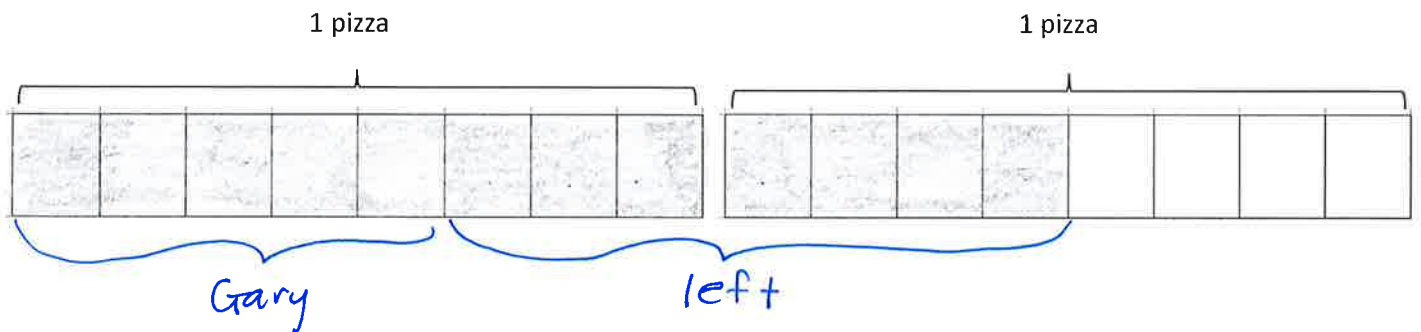
There was  $\frac{5}{8}$  of the cake left.

3. Maria spent  $\frac{4}{7}$  of her money on a book and saved the rest. What fraction of her money did Maria save?



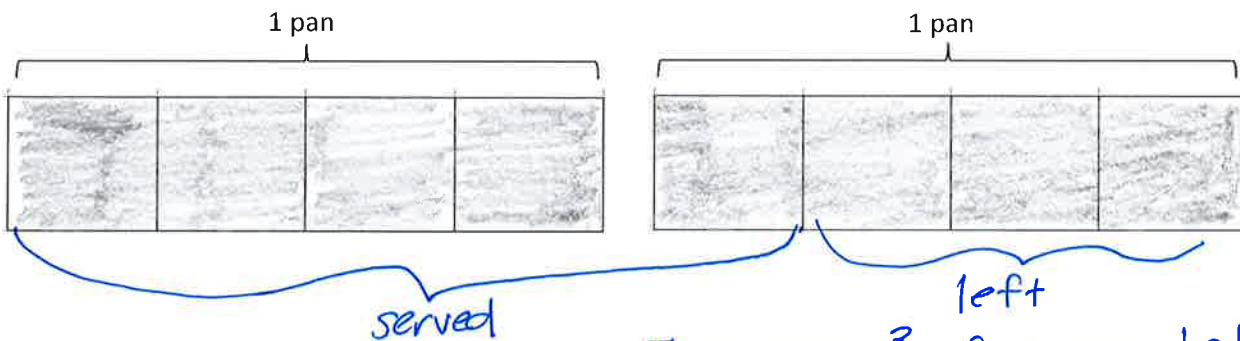
Maria saved  $\frac{3}{7}$  of her money.

4. Mrs. Jones had  $1\frac{4}{8}$  pizzas left after a party. After giving some to Gary, she had  $\frac{7}{8}$  pizza left. What fraction of a pizza did she give Gary?



She gave  $\frac{5}{8}$  of a pizza to Gary.

5. A baker had 2 pans of corn bread. He served  $1\frac{1}{4}$  pans. What fraction of a pan was left?

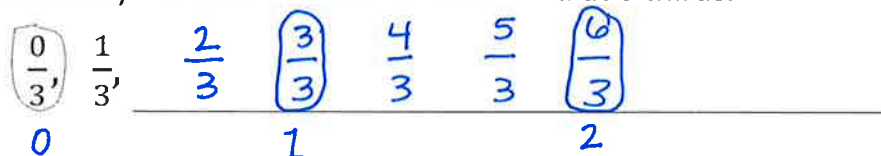


There was  $\frac{3}{4}$  of a pan left.

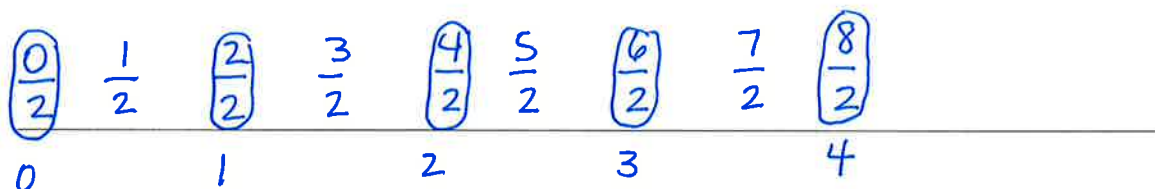
Name Key

1. Circle fractions that are equivalent to a whole number. Record the whole number below the fraction.

a. Count by 1 thirds. Start at 0 thirds. End at 6 thirds.



b. Count by 1 half. Start at 0 halves. End at 8 halves.

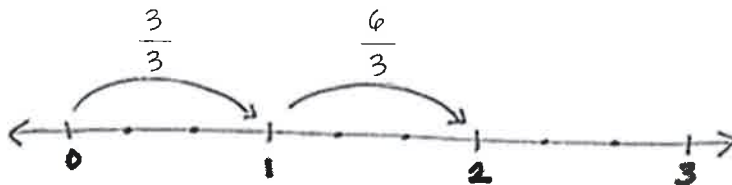


2. Use parentheses to show how to make ones in the following number sentence.

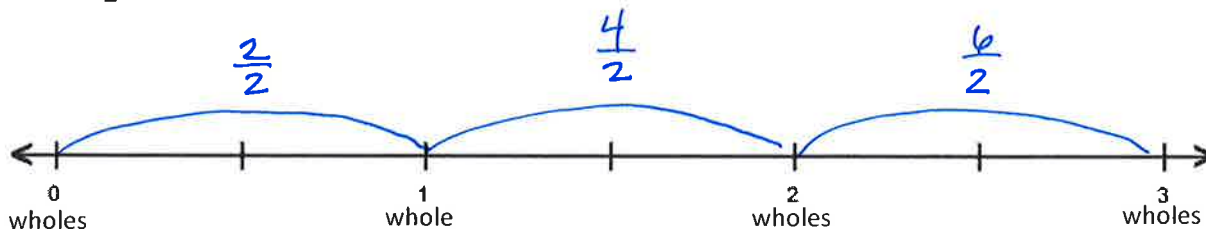
$$\left(\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4}\right) + \left(\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4}\right) + \left(\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4}\right) = 3$$

3. Multiply, as shown below. Use a number line to support your answer.

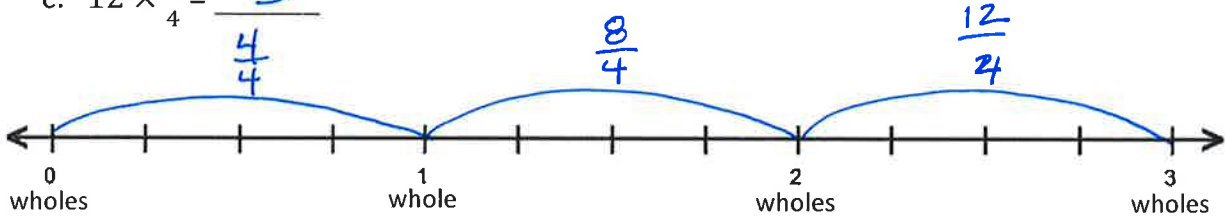
a.  $6 \times \frac{1}{3} = 2$



b.  $6 \times \frac{1}{2} = 3$

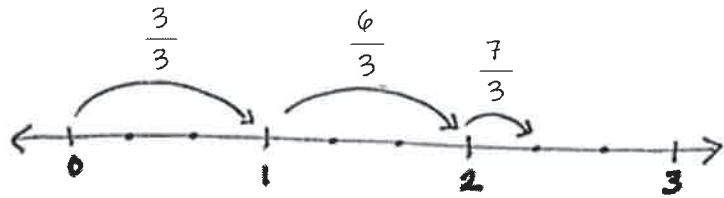


c.  $12 \times \frac{1}{4} = \frac{3}{4}$

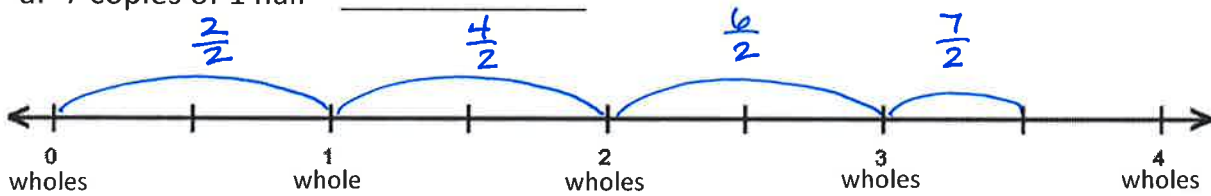


4. Multiply, as shown below. Write the product as a mixed number.

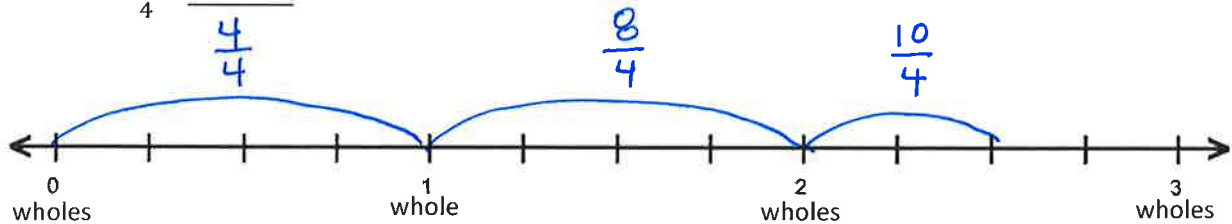
7 copies of 1 third =  $7 \times \frac{1}{3} = 2 \frac{1}{3}$



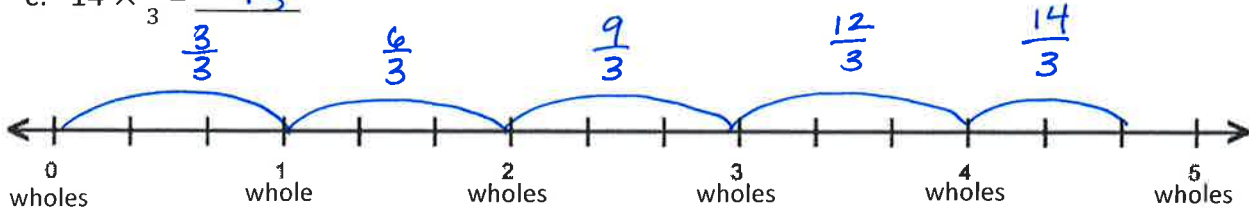
a. 7 copies of 1 half =  $3 \frac{1}{2}$



b.  $10 \times \frac{1}{4} = 2 \frac{2}{4}$



c.  $14 \times \frac{1}{3} = 4 \frac{2}{3}$





Name Key

1. Rename each fraction as a mixed number by decomposing it into two parts.

a.  $\frac{11}{3} = 3 + \frac{2}{3} = 3\frac{2}{3}$

$\frac{9}{3}$     $\frac{2}{3}$   
 ↙   ↘

b.  $\frac{12}{5} = 2 + \frac{2}{5} = 2\frac{2}{5}$

$\frac{10}{5}$     $\frac{2}{5}$

c.  $\frac{10}{2} = 5 + \frac{0}{2} = 5$

$\frac{10}{2}$     $\frac{0}{2}$

d.  $\frac{15}{4} = 3 + \frac{3}{4} = 3\frac{3}{4}$

$\frac{12}{4}$     $\frac{3}{4}$

e.  $\frac{11}{3} = 3 + \frac{2}{3} = 3\frac{2}{3}$

$\frac{9}{3}$     $\frac{2}{3}$

f.  $\frac{9}{2} = 4 + \frac{1}{2} = 4\frac{1}{2}$

$\frac{8}{2}$     $\frac{1}{2}$

g.  $\frac{17}{4} = 4 + \frac{1}{4} = 4\frac{1}{4}$

$\frac{16}{4}$     $\frac{1}{4}$

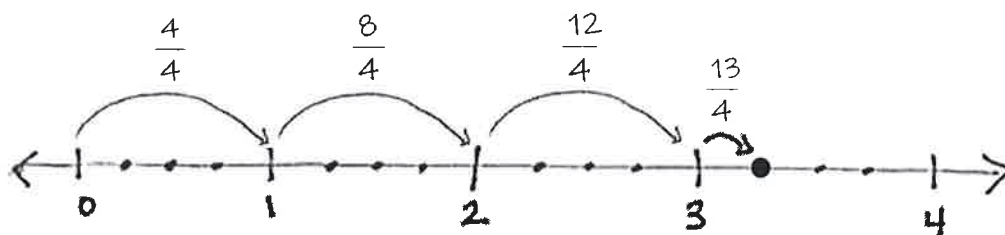
2. Use any strategy to convert each fraction to a mixed number.

a. $\frac{9}{4} = 2\frac{1}{4}$	b. $\frac{17}{5} = 3\frac{2}{5}$	c. $\frac{25}{6} = 4\frac{1}{6}$
d. $\frac{30}{7} = 4\frac{2}{7}$	e. $\frac{38}{8} = 4\frac{6}{8}$	f. $\frac{30}{9} = 3\frac{3}{9}$
g. $\frac{23}{10} = 2\frac{3}{10}$	h. $\frac{14}{10} = 1\frac{4}{10}$	i. $\frac{37}{12} = 3\frac{1}{12}$

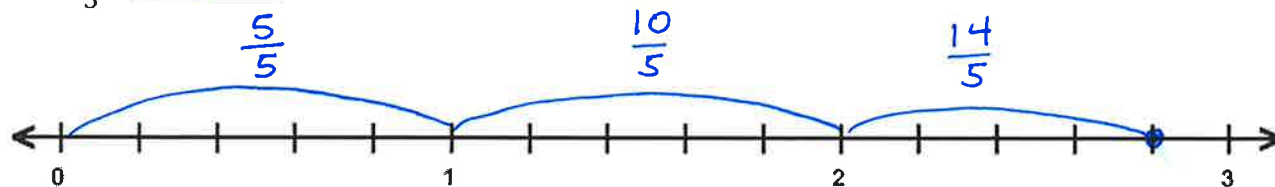
Name Key

1. Convert each mixed number to a fraction greater than 1. Use a number line to model your work.

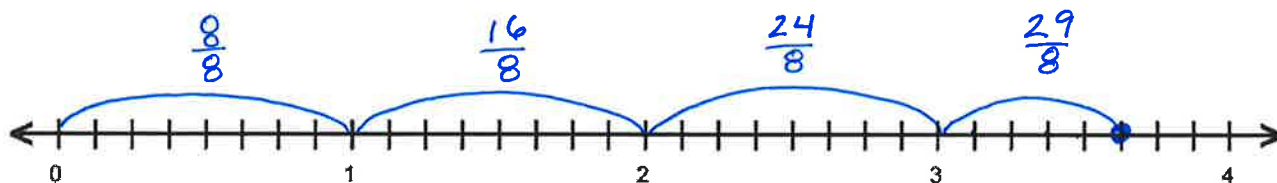
a.  $3\frac{1}{4} = 3 + \frac{1}{4} = \frac{12}{4} + \frac{1}{4} = \frac{13}{4}$



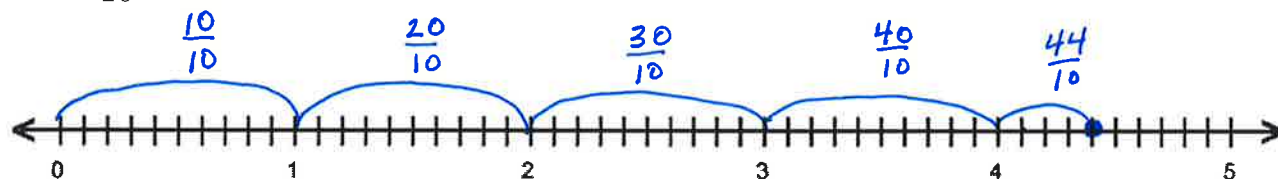
b.  $2\frac{4}{5} = \frac{14}{5}$



c.  $3\frac{5}{8} = \frac{29}{8}$



d.  $4\frac{4}{10} = \frac{44}{10}$



2. Convert each mixed number to a fraction greater than 1.

$$\text{a. } 3\frac{3}{4} = 3 + \frac{3}{4} = \frac{12}{4} + \frac{3}{4} = \frac{15}{4}$$

$$\text{b. } 4\frac{1}{3} = \frac{12}{3} + \frac{1}{3} = \frac{13}{3}$$

$$\text{c. } 4\frac{3}{5} = \frac{20}{5} + \frac{3}{5} = \frac{23}{5}$$

$$\text{d. } 4\frac{6}{8} = \frac{32}{8} + \frac{6}{8} = \frac{38}{8}$$

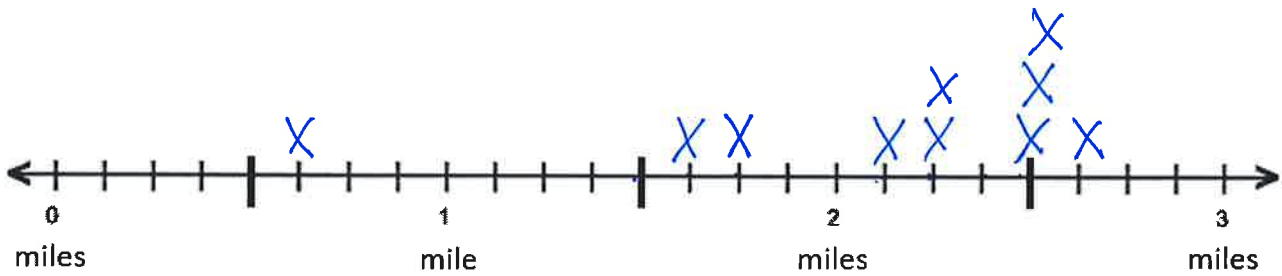
3. Use any strategy to convert each mixed number to a fraction greater than 1.

$\text{a. } 2\frac{3}{4} = \frac{11}{4}$	$\text{b. } 2\frac{2}{5} = \frac{12}{5}$	$\text{c. } 3\frac{3}{6} = \frac{21}{6}$
$\text{d. } 3\frac{3}{8} = \frac{27}{8}$	$\text{e. } 3\frac{1}{10} = \frac{31}{10}$	$\text{f. } 4\frac{3}{8} = \frac{35}{8}$

Name Key

1. The chart shows the distance in miles that fourth graders in Ms. Smith’s class were able to run before stopping for a rest. Create a line plot to display the data in the table.

Student	Joe	Arianna	Bobbi	Morgan	Jack	Sasha	Tyler	Jenny	Anson	Candy
Distance	$2\frac{4}{8}$	$1\frac{6}{8}$	$2\frac{1}{8}$	$1\frac{5}{8}$	$2\frac{5}{8}$	$2\frac{2}{8}$	$2\frac{4}{8}$	$\frac{5}{8}$	$2\frac{2}{8}$	$2\frac{4}{8}$



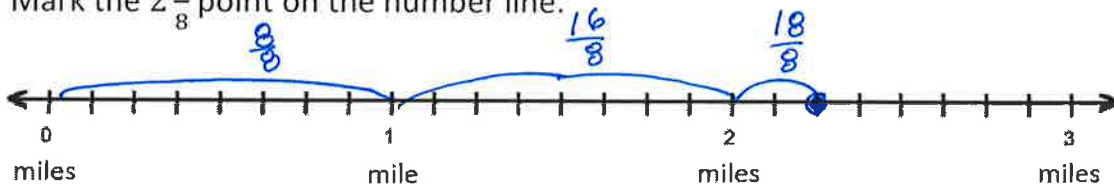
1. Solve each problem.

a. Who ran a mile farther than Jenny? Morgan

b. Who ran a mile less than Jack? Morgan

c. Two students ran exactly  $2\frac{2}{8}$  miles. Identify the students. Sasha & Anson

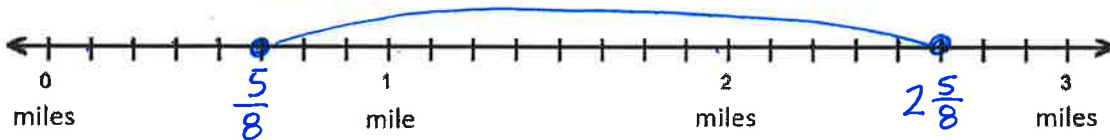
Mark the  $2\frac{2}{8}$  point on the number line.



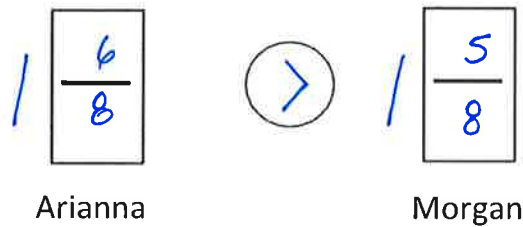
How many  $\frac{1}{8}$  mile did each of these students run in all?  $\frac{18}{8}$

d. Plot both the longest run and the shortest run on the number line.

What is the difference, in miles, between the longest and shortest distance run?  $\frac{16}{8}$  or 2 miles



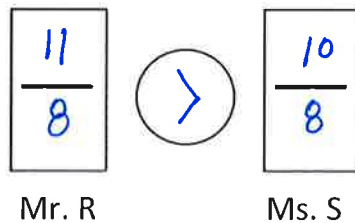
e. Compare the distances run by Arianna and Morgan using  $>$ ,  $<$ , or  $=$ .



f. Ms. Smith ran twice as far as Jenny. How far did Jenny run?  $\frac{5}{8}$  mi.

How far did Ms. Smith run if she ran twice as far as Jenny?  $\frac{10}{8}$  or  $1\frac{2}{8}$  mi.

g. Mr. Reynolds ran  $\frac{11}{8}$  miles. Use  $>$ ,  $<$ , or  $=$  to compare the distance Mr. Reynolds ran to the distance that Ms. Smith ran.

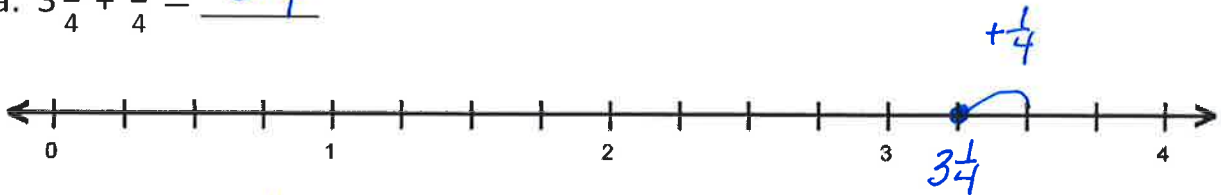


h. Who ran farther, Ms. Smith or Mr. Reynolds? Mr. Reynolds

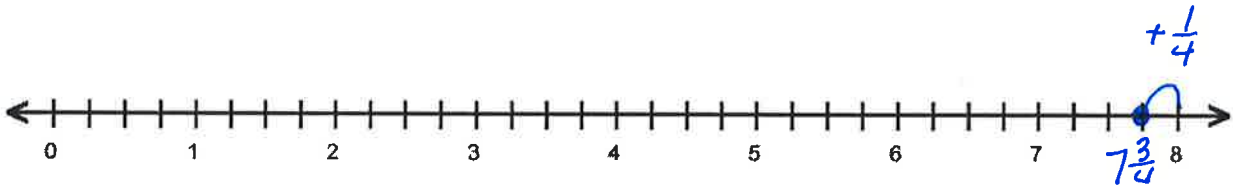
Name Key

1. Use number lines to solve.

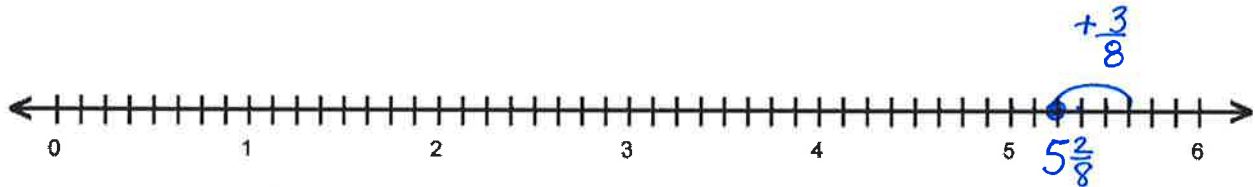
a.  $3\frac{1}{4} + \frac{1}{4} = \underline{3\frac{2}{4}}$



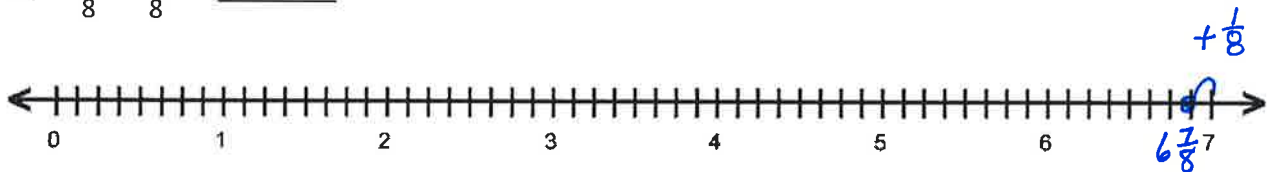
b.  $7\frac{3}{4} + \frac{1}{4} = \underline{7\frac{4}{4} = 8}$



c.  $5\frac{2}{8} + \frac{3}{8} = \underline{5\frac{5}{8}}$



d.  $6\frac{7}{8} + \frac{1}{8} = \underline{6\frac{8}{8} = 7}$



2. Complete the number sentences.

a. $4\frac{7}{8} + \underline{\frac{1}{8}} = 5$	b. $7\frac{2}{5} + \underline{\frac{3}{5}} = 8$
c. $3 = 2\frac{1}{6} + \underline{\frac{5}{6}}$	d. $12 = 11\frac{1}{12} + \underline{\frac{11}{12}}$

3. Use a number bonds to show how to make one. Solve.

a.  $2\frac{3}{4} + \frac{2}{4} = 3\frac{1}{4}$

b.  $3\frac{3}{5} + \frac{3}{5} = 4\frac{1}{5}$

4. Solve any way. Express answers as mixed numbers.

<p>a. <math>4\frac{2}{3} + \frac{2}{3} = 5\frac{1}{3}</math></p>	<p>b. <math>3\frac{3}{5} + \frac{4}{5} = 4\frac{2}{5}</math></p>
<p>c. <math>5\frac{4}{6} + \frac{5}{6} = 6\frac{3}{6}</math></p>	<p>d. <math>6\frac{4}{8} + \frac{7}{8} = 7\frac{3}{8}</math></p>
<p>e. <math>7\frac{9}{10} + \frac{7}{10} = 8\frac{6}{10}</math></p>	<p>f. <math>9\frac{7}{12} + \frac{11}{12} = 10\frac{6}{12}</math></p>



<p>g. <math>2\frac{7}{10} + \frac{8}{10} = 3\frac{5}{10}</math></p>	<p>h. <math>6\frac{5}{10} + \frac{7}{10} = 7\frac{2}{10}</math></p>
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5. To solve  $7\frac{9}{10} + \frac{5}{10}$ , Maria wrote,  $7\frac{9}{10} + \frac{1}{10} = 8$  and  $8 + \frac{4}{10} = 8\frac{4}{10}$ .

Explain Maria's solution:

Maria took  $\frac{1}{10}$  from the  $\frac{5}{10}$  to get to 8 wholes. She then combined the remaining  $\frac{4}{10}$  with the 8 to get a total of  $8\frac{4}{10}$ .

Name Key

1. Add whole numbers. Add fractions. Combine your answers.

a.  $3\frac{1}{3} + 2\frac{2}{3}$

$3 + 2 = 5$

$\frac{1}{3} + \frac{2}{3} = \frac{3}{3} = 1$

$5 + 1 = 6$

b.  $4\frac{1}{4} + 3\frac{2}{4}$

$4 + 3 = 7$     $\frac{1}{4} + \frac{2}{4} = \frac{3}{4}$     $7 + \frac{3}{4} = 7\frac{3}{4}$

c.  $2\frac{2}{6} + 6\frac{4}{6}$

$2 + 6 = 8$     $\frac{2}{6} + \frac{4}{6} = \frac{6}{6} = 1$     $8 + 1 = 9$

d.  $2\frac{4}{5} + 1\frac{2}{5}$

$2 + 1 = 3$     $\frac{4}{5} + \frac{2}{5} = \frac{6}{5} = 1\frac{1}{5}$     $3 + 1\frac{1}{5} = 4\frac{1}{5}$   
 $\frac{5}{5}$     $\frac{1}{5}$

e.  $1\frac{3}{4} + 3\frac{3}{4}$

$1 + 3 = 4$     $\frac{3}{4} + \frac{3}{4} = \frac{6}{4} = 1\frac{2}{4}$     $4 + 1\frac{2}{4} = 5\frac{2}{4}$   
 $\frac{4}{4}$     $\frac{2}{4}$

f.  $2\frac{4}{6} + 1\frac{5}{6}$

$$2+1=\textcircled{3} \quad \frac{4}{6} + \frac{5}{6} = \frac{9}{6} = \textcircled{1\frac{3}{6}} \quad 3+1\frac{3}{6} = 4\frac{3}{6}$$

g.  $1\frac{3}{4} + 3\frac{3}{4}$

$$1+3=\textcircled{4} \quad \frac{3}{4} + \frac{3}{4} = \frac{6}{4} = \textcircled{1\frac{2}{4}} \quad 4+1\frac{2}{4} = 5\frac{2}{4}$$

h.  $3\frac{3}{8} + 2\frac{6}{8}$

$$3+2=\textcircled{5} \quad \frac{3}{8} + \frac{6}{8} = \frac{9}{8} = \textcircled{1\frac{1}{8}} \quad 5+1\frac{1}{8} = 6\frac{1}{8}$$

i.  $1\frac{3}{5} + 3\frac{4}{5}$

$$1+3=\textcircled{4} \quad \frac{3}{5} + \frac{4}{5} = \frac{7}{5} = \textcircled{1\frac{2}{5}} \quad 4+1\frac{2}{5} = 5\frac{2}{5}$$

j.  $2\frac{6}{8} + 3\frac{7}{8}$

$$2+3=\textcircled{5} \quad \frac{6}{8} + \frac{7}{8} = \frac{13}{8} = \textcircled{1\frac{5}{8}} \quad 5+1\frac{5}{8} = 6\frac{5}{8}$$

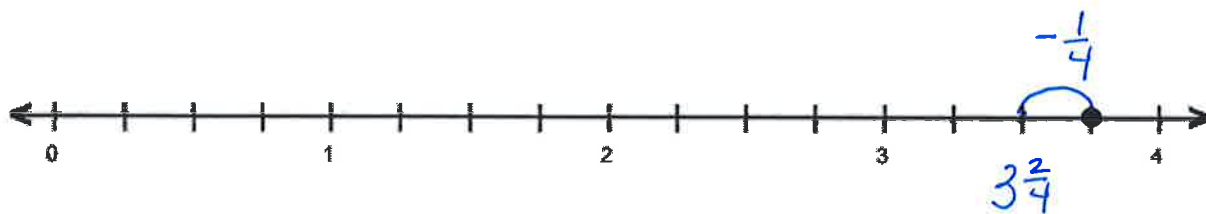
k.  $3\frac{8}{10} + 2\frac{7}{10}$

$$3+2=\textcircled{5} \quad \frac{8}{10} + \frac{7}{10} = \frac{15}{10} = \textcircled{1\frac{5}{10}} \quad 5+1\frac{5}{10} = 6\frac{5}{10}$$

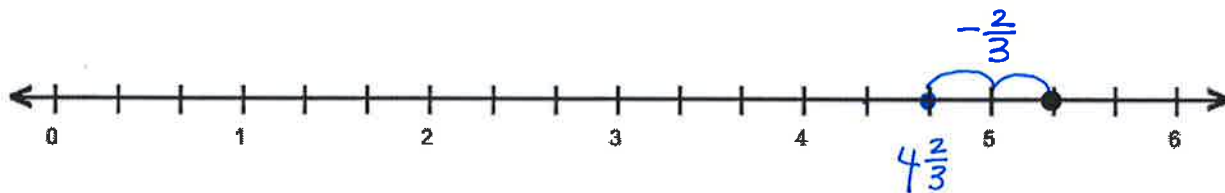
Name Key

1. Subtract. Model with a number line.

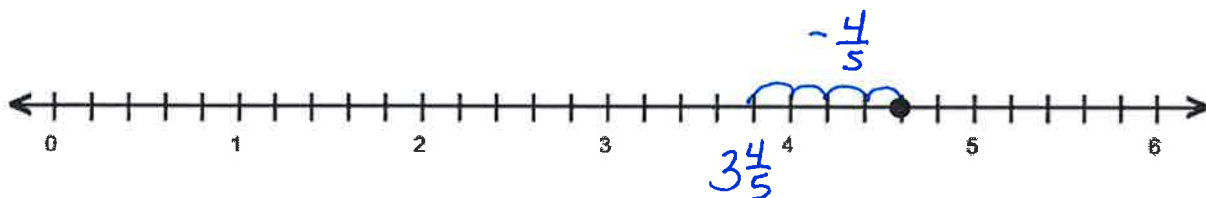
a.  $3\frac{3}{4} - \frac{1}{4} = \underline{3\frac{2}{4}}$



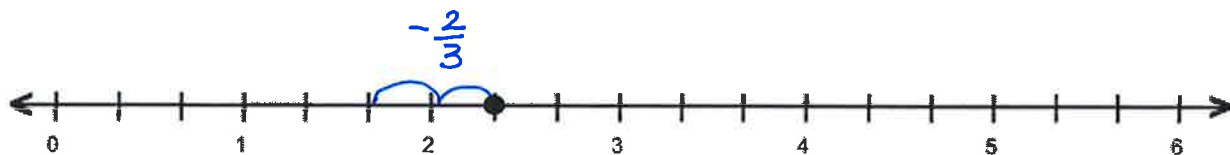
b.  $5\frac{1}{3} - \frac{2}{3} = \underline{4\frac{2}{3}}$



c.  $4\frac{3}{5} - \frac{4}{5} = \underline{3\frac{4}{5}}$

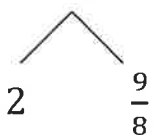


d.  $2\frac{1}{3} - \frac{2}{3} = \underline{1\frac{2}{3}}$

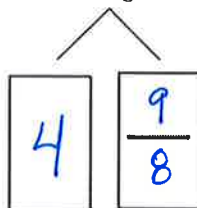


2. Decompose the total to subtract the fractions.

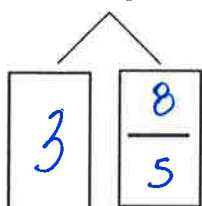
a.  $3\frac{1}{8} - \frac{3}{8} = 2\frac{9}{8} - \frac{3}{8} = 2\frac{6}{8}$



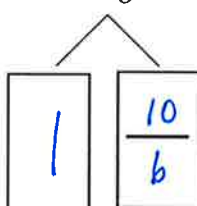
b.  $5\frac{1}{8} - \frac{7}{8} = 4\frac{2}{8}$



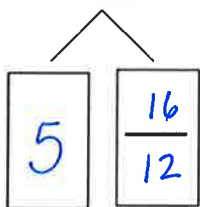
c.  $4\frac{3}{5} - \frac{4}{5} = 3\frac{4}{5}$



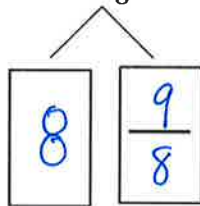
d.  $2\frac{4}{6} - \frac{5}{6} = 1\frac{5}{6}$



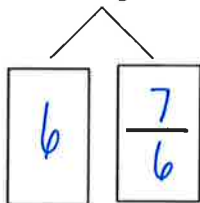
e.  $6\frac{4}{12} - \frac{7}{12} = 5\frac{9}{12}$



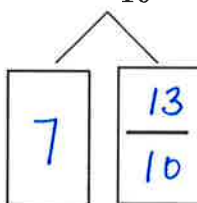
f.  $9\frac{1}{8} - \frac{5}{8} = 8\frac{4}{8}$



g.  $7\frac{1}{6} - \frac{5}{6} = 6\frac{2}{6}$



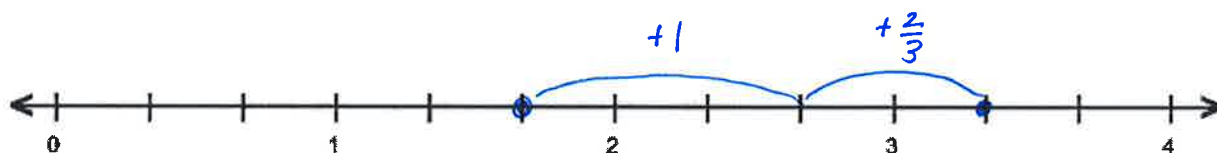
h.  $8\frac{3}{10} - \frac{4}{10} = 7\frac{9}{10}$



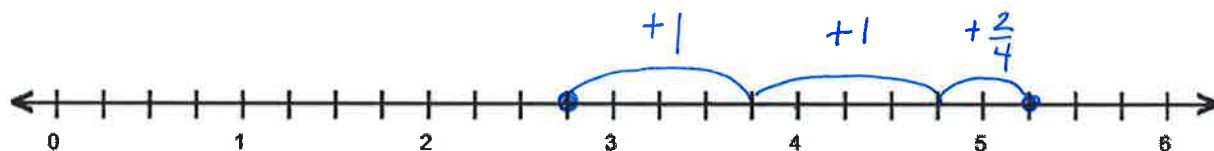
Name Key

1. Write a related addition sentence. Use the number line to subtract by counting on.

a.  $3\frac{1}{3} - 1\frac{2}{3} = \underline{1\frac{2}{3}}$        $1\frac{2}{3} + \underline{1\frac{2}{3}} = 3\frac{1}{3}$



b.  $5\frac{1}{4} - 2\frac{3}{4} = \underline{2\frac{2}{4}}$        $2\frac{3}{4} + \underline{2\frac{2}{4}} = 5\frac{1}{4}$

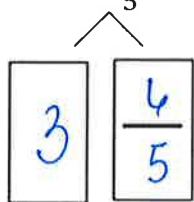


2. Subtract by decomposing the total.

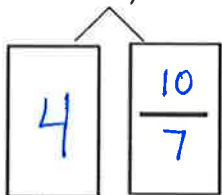
a.  $3\frac{1}{4} - 1\frac{3}{4} = 2\frac{5}{4} - 1\frac{3}{4} = (2 - 1) + (\frac{5}{4} - \frac{3}{4}) = \underline{1}$

$\begin{array}{l} \diagup \\ 2 \quad \frac{5}{4} \\ \diagdown \end{array}$

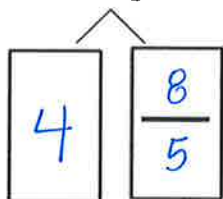
b.  $4\frac{1}{5} - 2\frac{4}{5} = \underline{(3 - 2) + (\frac{6}{5} - \frac{4}{5}) = 1\frac{2}{5}}$



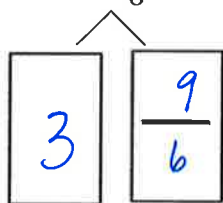
$$c. 5\frac{3}{7} - 3\frac{6}{7} = \underline{(4-3) + (\frac{10}{7} - \frac{6}{7}) = 1\frac{4}{7}}$$



$$d. 5\frac{3}{5} - 2\frac{4}{5} = \underline{(4-2) + (\frac{8}{5} - \frac{4}{5}) = 2\frac{4}{5}}$$



$$e. 4\frac{3}{6} - 3\frac{5}{6} = \underline{(3-3) + (\frac{9}{6} - \frac{5}{6}) = \frac{4}{6}}$$

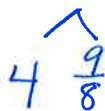


3. Solve any way.

$$a. 6\frac{1}{4} - 3\frac{3}{4} = \underline{2\frac{2}{4}}$$



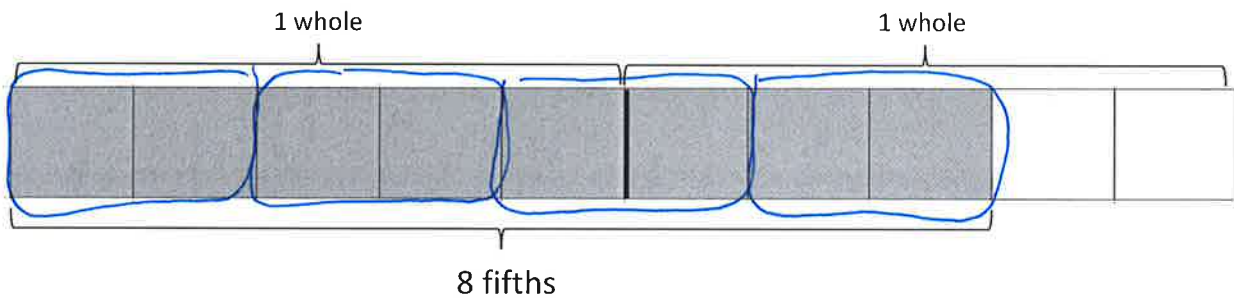
$$b. 5\frac{1}{8} - 2\frac{7}{8} = \underline{2\frac{2}{8}}$$



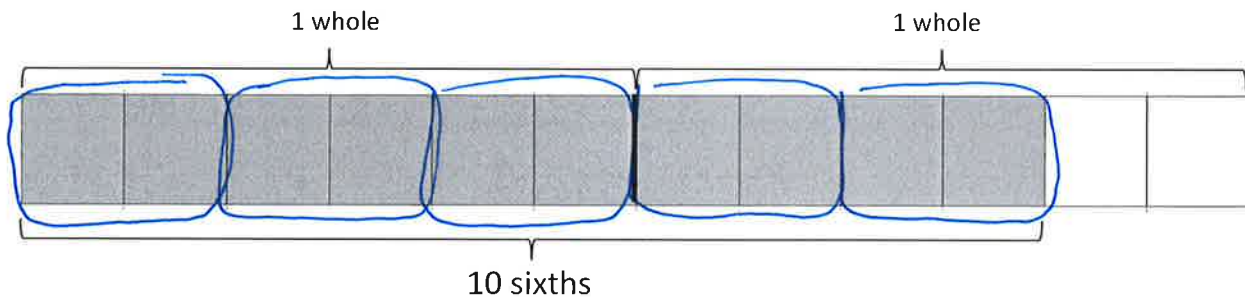
Name Key

1. Circle groups to show the following are true.

a.  $8 \text{ fifths} = 4 \times \boxed{2 \text{ fifths}}$



b.  $10 \text{ sixths} = 5 \times \boxed{2 \text{ sixths}}$



2. Write the expression in unit form to solve.

a.  $7 \times \frac{2}{3}$

7 x 2 thirds = 14 thirds

b.  $4 \times \frac{2}{4}$

4 x 2 fourths = 8 fourths



c.  $6 \times \frac{3}{8}$

$$\underline{6} \times \underline{3} \text{ eighths} = \underline{18} \text{ eighths}$$

d.  $6 \times \frac{5}{8}$

$$\underline{6} \times \underline{5} \text{ eighths} = \underline{30} \text{ eighths}$$

3. Solve. Write the final answer as a fraction.

a.  $7 \times \frac{4}{9} =$

$$\underline{7} \times \underline{4} \text{ ninths} = \underline{28} \text{ ninths}$$

$$= \boxed{\frac{28}{9}}$$

b.  $6 \times \frac{3}{5} =$

$$\underline{6} \times \underline{3} \text{ fifths} = \underline{18} \text{ fifths}$$

$$= \boxed{\frac{18}{5}}$$

c.  $8 \times \frac{3}{4} =$

$$\underline{8} \times \underline{3} \text{ fourths} = \underline{24} \text{ fourths}$$

$$= \boxed{\frac{24}{4}}$$

d.  $6 \times \frac{3}{8} =$

$$\underline{6} \times \underline{3} \text{ eighths} = \underline{18} \text{ eighths}$$

$$= \boxed{\frac{18}{8}}$$

e.  $10 \times \frac{7}{10} =$

$$\underline{10} \times \underline{7} \text{ tenths} = \underline{70} \text{ tenths}$$

$$= \boxed{\frac{70}{10}}$$

f.  $3 \times \frac{4}{100} =$

$$\underline{3} \times \underline{4} \text{ hundredths} = \underline{12} \text{ hundredths}$$

$$= \boxed{\frac{12}{100}}$$

4. Maria needs  $\frac{3}{5}$  yard of fabric for each costume. How many yards of fabric does she need for 6 costumes?

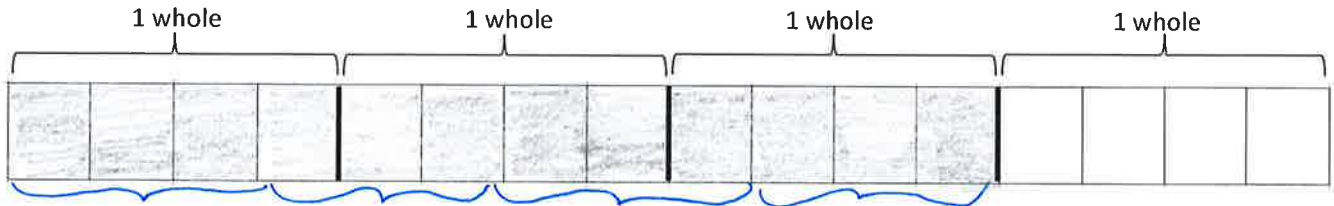
$$\underline{6} \times \underline{3} \text{ fifths} = \underline{18} \text{ fifths}$$

$$= \boxed{\frac{18}{5}}$$

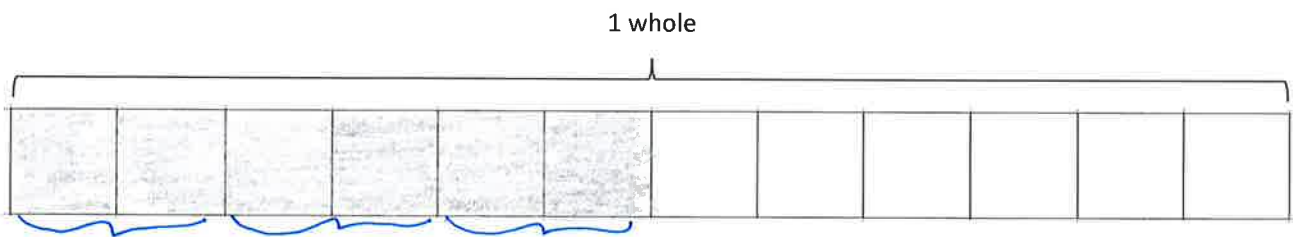
She needs  $\frac{18}{5}$  yds. (or  $3\frac{3}{5}$  yds.) of fabric.

Name Key

1. Shade the tape diagram to represent:  $\frac{3}{4} + \frac{3}{4} + \frac{3}{4} + \frac{3}{4} = \underline{\frac{12}{4} = 3}$



2. Shade the tape diagram to represent:  $\frac{2}{12} + \frac{2}{12} + \frac{2}{12} = \underline{\frac{6}{12}}$



Write a multiplication expression equal to:  $\frac{3}{4} + \frac{3}{4} + \frac{3}{4} + \frac{3}{4} = 4 \times \underline{\frac{3}{4}} = \underline{\frac{12}{4}}$

Write a multiplication expression equal to:  $\frac{7}{12} + \frac{7}{12} + \frac{7}{12} = 3 \times \underline{\frac{7}{12}} = \underline{\frac{21}{12}}$

3. Rewrite each repeated addition problem as a multiplication problem and solve.

a.  $\frac{7}{5} + \frac{7}{5} + \frac{7}{5} + \frac{7}{5} = 4 \times \frac{7}{5} = \underline{\frac{28}{5}}$

b.  $\frac{9}{10} + \frac{9}{10} + \frac{9}{10} = \underline{3 \times \frac{9}{10} = \frac{27}{10}}$

4. Solve using any method.

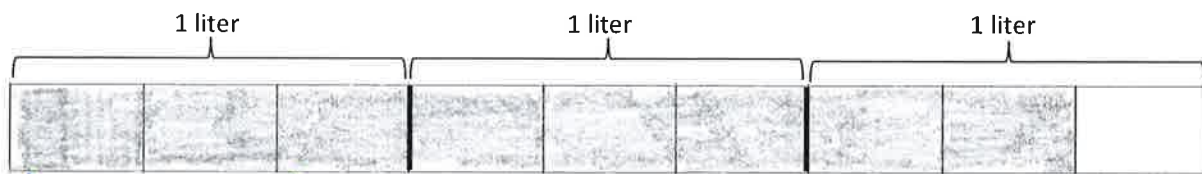
a.  $3 \times \frac{2}{3} = \underline{\frac{6}{3}}$

b.  $4 \times \frac{3}{4} = \underline{\frac{12}{4}}$

c.  $5 \times \frac{2}{5} = \underline{\frac{10}{5}}$

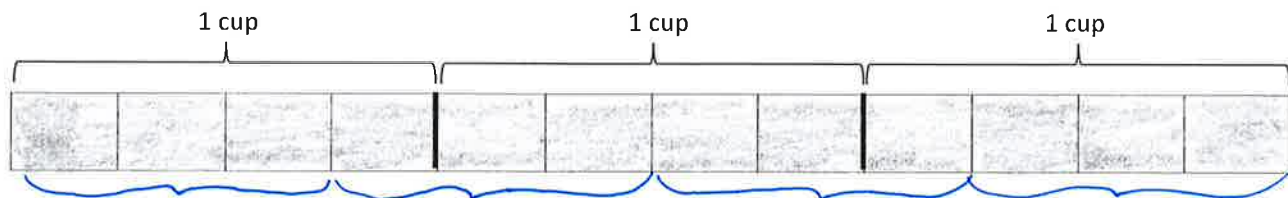
d.  $2 \times \frac{7}{8} = \underline{\frac{14}{8}}$

4. Morgan poured  $\frac{2}{3}$  liter of punch into each of 4 bottles. How many liters of punch did she pour in all?



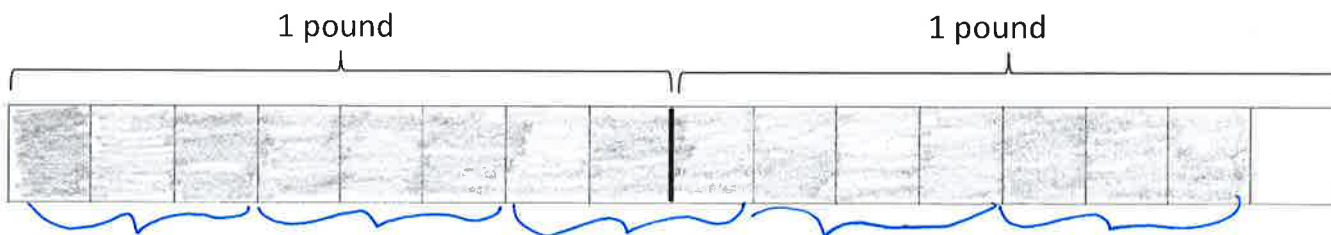
*She poured  $2\frac{2}{3}$  liters of punch.*

5. A recipe calls for  $\frac{3}{4}$  cup rice. How many cups of rice are needed to make the recipe 4 times?



*3 cups of rice is needed.*

6. A butcher prepared 5 sausages using  $\frac{3}{8}$  pound of meat for each. How many pounds did he use in all?



*He used  $1\frac{7}{8}$  lb. of sausage.*

Name \_\_\_\_\_

1. Solve the following using the distributive

a.  $3 \times 6\frac{1}{5}$

3 groups of 6

AND

3 groups of  $\frac{1}{5}$ 

18 +  $\frac{3}{5}$  =  $18\frac{3}{5}$

b.  $2 \times 4\frac{1}{3}$

2 groups of 4

AND

2 groups of  $\frac{1}{3}$ 

8 +  $\frac{2}{3}$  =  $8\frac{2}{3}$

c.  $3 \times 2\frac{2}{8}$

( 3 x 2 ) + ( 3 x  $\frac{2}{8}$  )

6 +  $\frac{6}{8}$  =  $6\frac{6}{8}$

d.  $2 \times 4\frac{4}{10}$

( 2 x 4 ) + ( 2 x  $\frac{4}{10}$  )

8 +  $\frac{8}{10}$  =  $8\frac{8}{10}$

e.  $3 \times 7\frac{1}{4}$

( 3 x 7 ) + ( 3 x  $\frac{1}{4}$  )

21 +  $\frac{3}{4}$  =  $21\frac{3}{4}$

f.  $6 \times 3\frac{1}{8}$

( 6 x 3 ) + ( 6 x  $\frac{1}{8}$  )

18 +  $\frac{6}{8}$  =  $18\frac{6}{8}$

f.  $4 \times 9\frac{1}{5}$

$$(4 \times 9) + (4 \times \frac{1}{5})$$

$$\underline{36} + \underline{\frac{4}{5}} = \underline{36\frac{4}{5}}$$

g.  $4 \times 5\frac{1}{8}$

$$(4 \times 5) + (4 \times \frac{1}{8})$$

$$\underline{20} + \underline{\frac{4}{8}} = \underline{20\frac{4}{8}}$$

2. For one dance costume, Sasha needs  $4\frac{1}{6}$  feet of ribbon. How much ribbon does she need for 5 identical costumes?

$$(5 \times 4) + (5 \times \frac{1}{6})$$
$$20 + \frac{5}{6} = 20\frac{5}{6}$$

Sasha needs  $20\frac{5}{6}$  ft. of ribbon  
for 5 costumes.



Name Key

1. The chart to the right shows the height of some football players.
  - a. Use the data to create a line plot at the bottom of this page and to answer the questions below.

Player	Height (in feet)
A	$6\frac{2}{8}$ ✓
B	$5\frac{7}{8}$ ✓
C	$6\frac{4}{8}$ ✓
D	$6\frac{2}{8}$ ✓
E	$6\frac{2}{8}$ ✓
F	$5\frac{7}{8}$ ✓
G	$6\frac{1}{8}$ ✓
H	$6\frac{5}{8}$ ✓
I	$5\frac{6}{8}$ ✓
J	$6\frac{1}{8}$ ✓

b. What is the difference in height of the tallest and shortest players?  $\frac{7}{8}$  ft.

$$6\frac{5}{8} - 5\frac{6}{8} = 5\frac{13}{8} - 5\frac{6}{8} = \frac{7}{8}$$

c. Player I and Player B have a **combined** height that is  $1\frac{1}{8}$  feet **taller** than a school bus. What is the height of a school bus?  $10\frac{4}{8}$  ft.

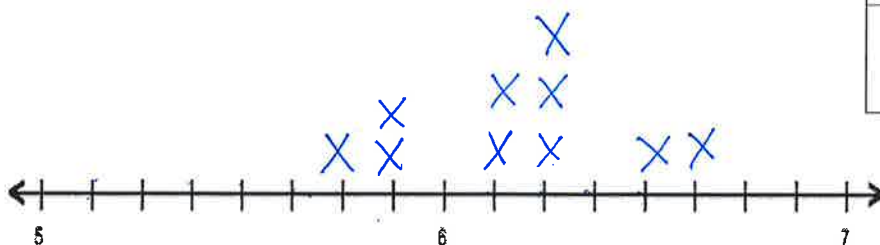
$$5\frac{6}{8} + 5\frac{7}{8} = 10\frac{13}{8} = 11\frac{5}{8}$$

$$11\frac{5}{8} - 1\frac{1}{8} = 10\frac{4}{8}$$

2. One of the players on the team is now 4 times as tall as he was at birth, when he measured  $1\frac{5}{8}$  feet.

Who is the player? Player C

$$4 \times 1\frac{5}{8} = (4 \times 1) + (4 \times \frac{5}{8}) = 4 + \frac{20}{8} = 6\frac{4}{8}$$



3. Doctors recommend that players drink at least  $3\frac{3}{4}$  quarts of water each day. At least how much water should be consumed per day by 6 players?

$$6 \times 3\frac{3}{4} = (6 \times 3) + (6 \times \frac{3}{4})$$

$$18 + \frac{18}{4} = 22\frac{2}{4}$$

$$\frac{16}{4} \quad \wedge \quad \frac{2}{4}$$

They should drink at least  $22\frac{2}{4}$  quarts of water.

4. Doctors recommend that athletes each eat about  $\frac{7}{10}$  pounds of protein each day. About how many combined pounds of protein should these 9 players eat per day?

$$9 \times \frac{7}{10} = \frac{63}{10} = 6\frac{3}{10}$$

$$\frac{60}{10} \quad \wedge \quad \frac{3}{10}$$

Nine players should eat  $6\frac{3}{10}$  lbs. of protein.



Name Key

1. Combine fractions that make a whole to find the sums.

$$\text{a. } \frac{0}{3} + \frac{1}{3} + \frac{2}{3} + \frac{3}{3}$$

$$= \underline{2}$$

$$\text{b. } \frac{0}{4} + \frac{1}{4} + \frac{2}{4} + \frac{3}{4} + \frac{4}{4}$$

$$= \underline{2\frac{2}{4}}$$

$$\text{c. } \frac{0}{5} + \frac{1}{5} + \frac{2}{5} + \frac{3}{5} + \frac{4}{5} + \frac{5}{5}$$

$$= \underline{3}$$

$$\text{d. } \frac{0}{6} + \frac{1}{6} + \frac{2}{6} + \frac{3}{6} + \frac{4}{6} + \frac{5}{6} + \frac{6}{6}$$

$$= \underline{3\frac{3}{6}}$$

$$\text{e. } \frac{1}{7} + \frac{2}{7} + \frac{3}{7} + \frac{4}{7} + \frac{5}{7} + \frac{6}{7} + \frac{7}{7}$$

$$= \underline{4}$$

$$\text{f. } \frac{1}{8} + \frac{2}{8} + \frac{3}{8} + \frac{4}{8} + \frac{5}{8} + \frac{6}{8} + \frac{7}{8} + \frac{8}{8}$$

$$= \underline{4\frac{4}{8}}$$

2. Describe a pattern you notice when adding the sums of fractions with even denominators as opposed to those with odd denominators.

Odd denominators give whole number sums. Even numbered denominators give mixed number sums.

3. Did the sums change if the addition started with the unit fraction rather than with 0?

No, because adding zero would not change a sum.

4. Think about partners that make a whole to find the sums.

a.  $\frac{0}{10} + \frac{1}{10} + \frac{2}{10} + \dots + \frac{10}{10}$

$5 \frac{5}{10}$

b.  $\frac{0}{12} + \frac{1}{12} + \frac{2}{12} + \dots + \frac{12}{12}$

$6 \frac{6}{12}$

c.  $\frac{0}{15} + \frac{1}{15} + \frac{2}{15} + \dots + \frac{15}{15}$

8

d.  $\frac{0}{20} + \frac{1}{20} + \frac{2}{20} + \dots + \frac{20}{20}$

$10 \frac{10}{20}$

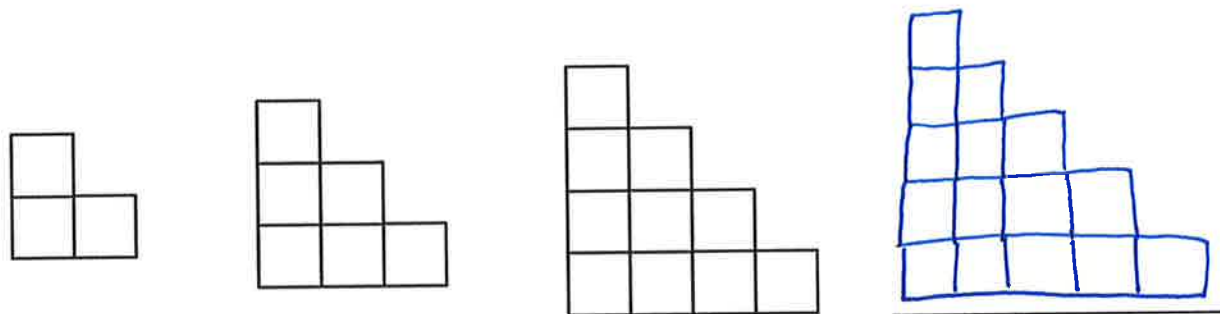
5. How can you apply this strategy to find the sum of all the whole numbers from 0 to 100?

Half of 100 is 50, so the sum would be  $50 \frac{50}{100}$

Name Key

1. Draw the next picture in the pattern. Describe the pattern.

a.



Describe the pattern: +3, +4, +5...

b.



Describe the pattern: (1x1) (2x2) (3x3) (4x4)...

2. Complete the input/output tables. Describe the rule.

a.

input	output
1	6
2	7
3	8
4	9

Rule: +5

b.

input	output
3	0
4	1
5	2
6	3

Rule: -3

c.

input	output
1	10
2	20
3	30
4	40

Rule: x 10

3. Complete the conversion tables. Describe the rule.

a.

Feet	Inches
2	24
4	48
6	72
8	96

Rule:  $\times 12$

b.

Feet	Yards
3	1
6	2
9	3
12	4

Rule:  $\div 3$

c.

Pounds	Ounces
1	16
2	32
3	48
4	64

Rule:  $\times 16$

d.

Quarts	Pints
5	10
10	20
15	30
20	40

Rule:  $\times 2$