

MSP

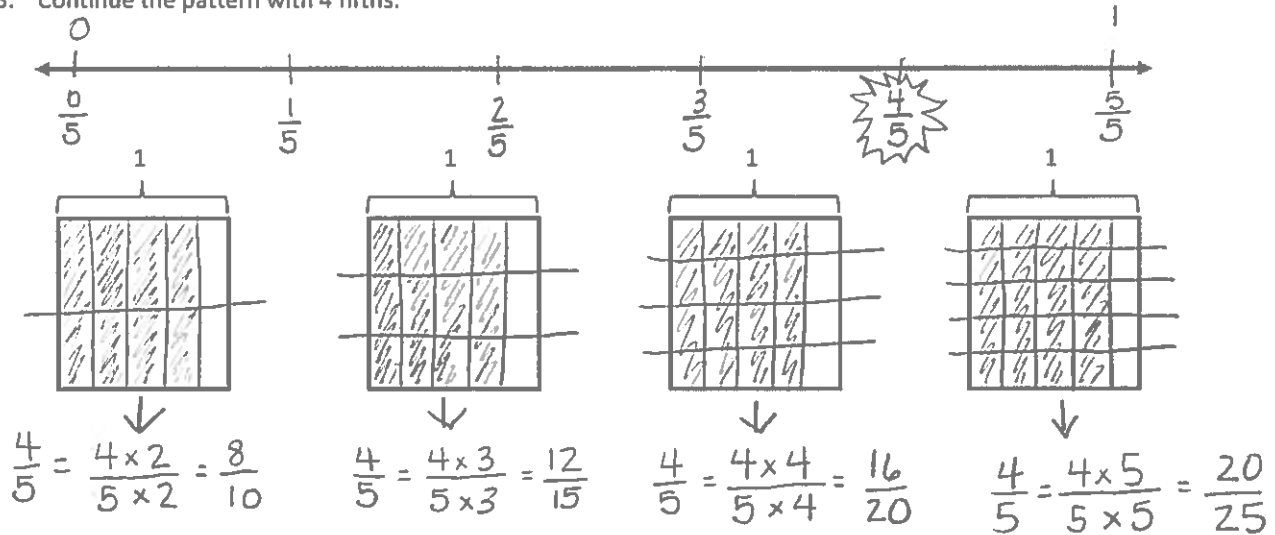
Grade 5 Module 3

Lesson Refreshers

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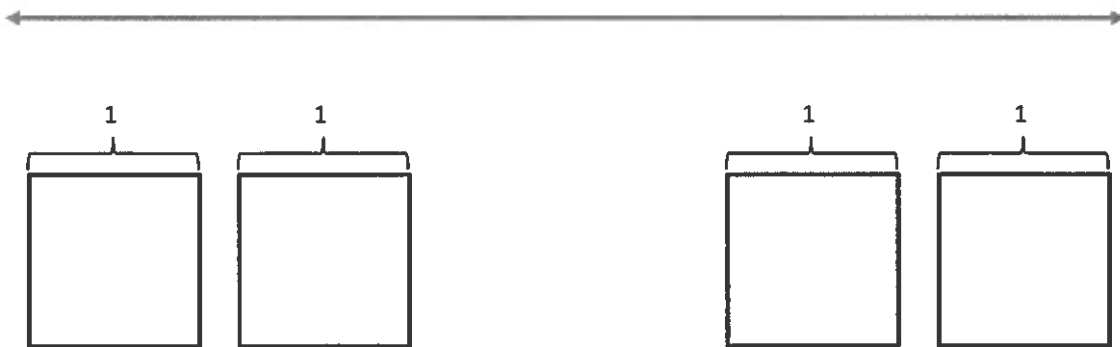
Homework Starters

3. Continue the pattern with 4 fifths.



* You can show equivalent fractions using an area model. If you double ($\times 2$) the number of equal parts, the size of each part gets smaller but the value remains the same ($\frac{4}{5} = \frac{8}{10}$). The pattern of equivalency continues if you multiply the the number of equal parts by 3, 4, 5, and so on.

4. Continue the process, and model 2 equivalent fractions for 9 eighths. Estimate to mark the points on the number line.



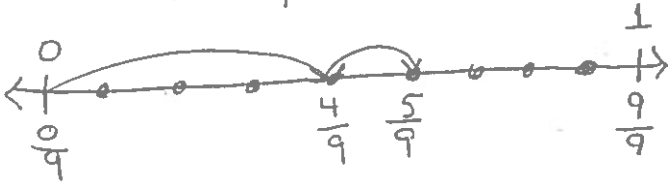
Name _____

Date _____

1. Show each expression on a number line. Solve.

a. $\frac{4}{9} + \frac{1}{9} = \frac{5}{9}$

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



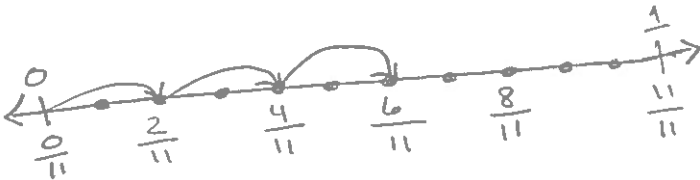
c. $\frac{2}{7} + \frac{2}{7} + \frac{2}{7}$

d. $2 \times \frac{3}{5} + \frac{1}{5}$

2. Express each fraction as the sum of two or three equal fractional parts. Rewrite each as a multiplication equation. Show Part (a) on a number line.

a. $\frac{6}{11} = \frac{2}{11} + \frac{2}{11} + \frac{2}{11} = 3 \times \frac{2}{11}$

b. $\frac{9}{4}$



c. $\frac{12}{8}$

d. $\frac{27}{10}$

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Name _____

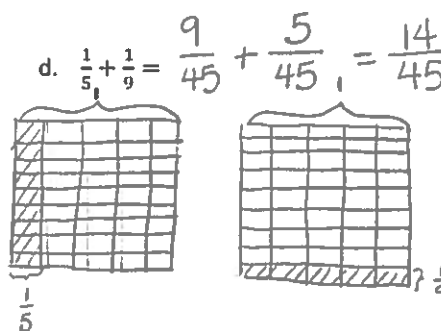
Date _____

1. Draw a rectangular fraction model to find the sum. Simplify your answer, if possible.

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

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

c. $\frac{1}{4} + \frac{1}{6} =$



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

f. $\frac{3}{5} + \frac{3}{7} =$

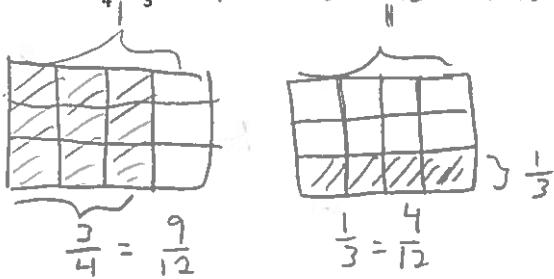
★ draw a model of each fraction.
 ★ make sure each model of 1 whole is the same size.
 ★ partition each model into smaller size units so that the smaller units are equal in size (make equivalent fractions to add unlike units).
 ★ Once the units are the same in both models just add the numerators ($9+5=14$).

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1. For the following problems, draw a picture using the rectangular fraction model and write the answer. When possible, write your answer as a mixed number.

a. $\frac{3}{4} + \frac{1}{3} = \frac{9}{12} + \frac{4}{12} = \frac{13}{12} = 1\frac{1}{12}$ b. $\frac{3}{4} + \frac{2}{3} =$



AK

c. $\frac{1}{3} + \frac{3}{5} =$

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

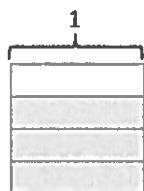
e. $\frac{2}{3} + \frac{5}{6} =$

f. $\frac{4}{3} + \frac{4}{7} =$

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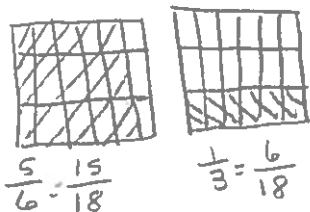
1. The picture below shows $\frac{3}{4}$ of the rectangle shaded. Use the picture to show how to create an equivalent fraction for $\frac{3}{4}$, and then subtract $\frac{1}{3}$.



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

2. Find the difference. Use a rectangular fraction model to find common denominators. Simplify your answer, if possible.

a. $\frac{5}{6} - \frac{1}{3} =$



$$\begin{aligned} \frac{5}{6} - \frac{1}{3} \\ = \frac{15}{18} - \frac{6}{18} \\ = \frac{9 \div 9}{18 \div 9} = \frac{1}{2} \end{aligned}$$

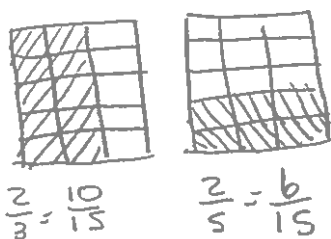
b. $\frac{2}{3} - \frac{1}{2} =$

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

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

e. $\frac{2}{3} - \frac{2}{5} =$

f. $\frac{5}{7} - \frac{2}{3} =$

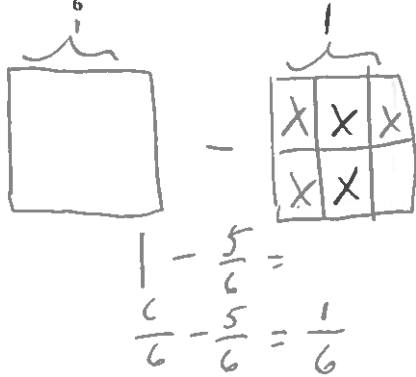


$$\begin{aligned} \frac{2}{3} - \frac{2}{5} \\ = \frac{10}{15} - \frac{6}{15} \\ = \frac{4}{15} \end{aligned}$$

Name _____ Date _____

1. For the following problems, draw a picture using the rectangular fraction model and write the answer. Simplify your answer, if possible.

a. $1 - \frac{5}{6} =$

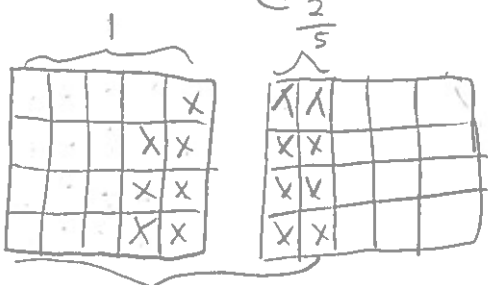


b. $\frac{3}{2} - \frac{5}{6} =$

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

d. $1\frac{1}{8} - \frac{3}{5} =$

e. $1\frac{2}{5} - \frac{3}{4} = \frac{13}{20}$



f. $1\frac{5}{6} - \frac{7}{8} =$

$1\frac{2}{5} = \frac{7(x4)28}{5(x4)20}$ $\frac{3(x5)15}{4(x5)20}$

$1\frac{2}{5} - \frac{3}{4} = \frac{28}{20} - \frac{15}{20} = \frac{13}{20}$ 33 PK

Read — CUBE
 Draw — Tape Diagram
 Write — If your problem is in words, your answer needs to be in words

Name _____

Date _____

Solve the word problems using the RDW strategy. Show all of your work.

1. Christine baked a pumpkin pie. She ate $\frac{1}{6}$ of the pie. Her brother ate $\frac{1}{3}$ of it and gave the leftovers to his friends. What fraction of the pie did he give to his friends?

Tape Diagram to show visual of pie.

$\frac{1}{6}$ Christine
 + $\frac{1}{3}$ brother

 total # of pieces eaten

Add $\frac{1}{6}$ and $\frac{1}{3}$; need to have common denominator.

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

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

total pieces eaten $\frac{3}{6}$



leftovers for friends

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

$$- \frac{3}{6} = \text{eaten pie}$$

$$\frac{3}{6} = \text{leftovers}$$

After Christine and her brother ate $\frac{3}{6}$ of the pie, there was $\frac{3}{6}$ leftover.

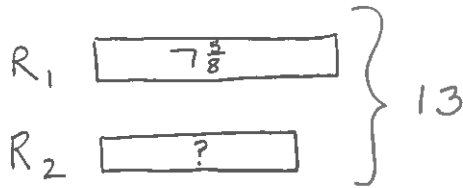
$\frac{3}{6} = \frac{1}{2}$ in simplest form.

2. Liang went to the bookstore. He spent $\frac{1}{3}$ of his money on a pen and $\frac{2}{7}$ of it on books. What fraction of his money did he have left?

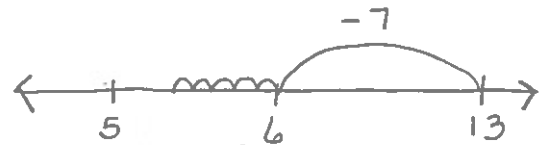
Christine and her brother ate $\frac{1}{2}$ of the pie and $\frac{1}{2}$ was leftovers for the brothers friends.

3. Tiffany bought $\frac{2}{5}$ kg of cherries. Linda bought $\frac{1}{10}$ kg of cherries less than Tiffany. How many kilograms of cherries did they buy altogether?

2. The total length of two ribbons is 13 meters. If one ribbon is $7\frac{5}{8}$ meters long, what is the length of the other ribbon?



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



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

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

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

$$5\frac{3}{8}$$

The length of the other ribbon is $5\frac{3}{8}$ meters.

3. It took Sandy two hours to jog 13 miles. She ran $7\frac{1}{2}$ miles in the first hour. How far did she run during the second hour?

4. Andre says that $5\frac{3}{4} + 2\frac{1}{4} = 7\frac{1}{2}$ because $7\frac{4}{8} = 7\frac{1}{2}$. Identify his mistake. Draw a picture to prove that he is wrong.

Name _____

Date _____

1. Make like units, and then add.

$$\text{a. } \frac{3}{5} + \frac{1}{3} = \left(\frac{3}{5} \times \frac{3}{3} \right) + \left(\frac{1}{3} \times \frac{5}{5} \right) \quad \text{b. } \frac{3}{5} + \frac{1}{11} =$$

$$= \frac{9}{15} + \frac{5}{15}$$

$$= \frac{14}{15}$$

$$\text{c. } \frac{2}{9} + \frac{5}{6} =$$

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

$$= \frac{8}{20} + \frac{5}{20} + \frac{2}{20}$$

$$= \frac{15}{20} = \frac{3}{4}$$

$$\text{e. } \frac{1}{3} + \frac{7}{5} =$$

$$\text{f. } \frac{5}{8} + \frac{7}{12} =$$

$$\begin{aligned} \text{g. } 1\frac{1}{3} + \frac{3}{4} &= 1 + \left(\frac{1}{3} \times \frac{4}{4}\right) + \left(\frac{3}{4} \times \frac{3}{3}\right) & \text{h. } \frac{5}{6} + 1\frac{1}{4} &= \\ &= 1 + \frac{4}{12} + \frac{9}{12} \\ &= 1 + \frac{13}{12} \\ &= 1 + \frac{12}{12} + \frac{1}{12} \\ &= 1 + 1 + \frac{1}{12} \\ &= 2\frac{1}{12} \end{aligned}$$

2. On Monday, Ka practiced guitar for $\frac{2}{3}$ of one hour. When she finished, she practiced piano for $\frac{3}{4}$ of one hour. How much time did Ka spend practicing instruments on Monday?

Name _____

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1. Add.

$$\begin{aligned} \text{a. } 2\frac{1}{2} + 1\frac{1}{5} &= 3 + \left(\frac{1}{2} \times \frac{5}{5}\right) + \left(\frac{1}{5} \times \frac{2}{2}\right) \\ &= 3 + \frac{5}{10} + \frac{2}{10} \\ &= 3 + \frac{7}{10} = 3\frac{7}{10} \end{aligned}$$

c. $1\frac{1}{5} + 3\frac{1}{3} =$

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

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

$$\begin{aligned} \text{f. } 3\frac{5}{7} + 4\frac{2}{3} &= 7 + \left(\frac{5}{7} \times \frac{3}{3}\right) + \left(\frac{2}{3} \times \frac{7}{7}\right) \\ &= 7 + \frac{15}{21} + \frac{14}{21} \\ &= 7 + \frac{29}{21} \\ &= 7 + \frac{21}{21} + \frac{8}{21} \\ &= 7 + 1 + \frac{8}{21} = 8\frac{8}{21} \end{aligned}$$

g. $15\frac{1}{5} + 4\frac{3}{8} =$

h. $18\frac{3}{8} + 2\frac{2}{5} =$

Name _____

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1. Generate equivalent fractions to get like units. Then, subtract.

a. $\frac{1}{2} - \frac{1}{5} = \frac{5}{10} - \frac{2}{10} = \left(\frac{3}{10}\right)$
 $\frac{1}{2} \times \frac{5}{5} = \frac{5}{10}$
 $-\frac{1}{5} \times \frac{2}{2} = \frac{2}{10}$

 P.K.

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

c. $\frac{7}{10} - \frac{3}{5} =$

d. $1\frac{5}{6} - \frac{2}{3} =$

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

f. $5\frac{6}{7} - 3\frac{2}{3} =$

g. $15\frac{7}{8} - 5\frac{3}{4} =$

h. $15\frac{5}{8} - 3\frac{1}{3} =$

Name _____

Date _____

1. Subtract.

$$\begin{aligned} \text{a. } 3\frac{1}{4} - 2\frac{1}{3} &= 3 - 2\frac{1}{3} = \frac{2}{3} \\ &\quad \wedge \\ &\quad 3 \quad \frac{1}{4} \\ &\quad \frac{2}{3} + \frac{1}{4} \\ &= \frac{8}{12} - \frac{3}{12} \\ &= \frac{5}{12} \end{aligned}$$

$$\text{b. } 3\frac{2}{3} - 2\frac{3}{4} =$$

$$\text{c. } 6\frac{1}{5} - 4\frac{1}{4} =$$

$$\text{d. } 6\frac{3}{5} - 4\frac{3}{4} =$$

$$\text{e. } 5\frac{2}{7} - 4\frac{1}{3} =$$

$$\begin{aligned} \text{f. } 8\frac{2}{3} - 3\frac{5}{7} &= 5\frac{2}{3} - \frac{5}{7} \\ &= 4\frac{5}{3} - \frac{5}{7} \\ &= 4\left(\frac{5}{3} \times \frac{7}{7}\right) - \left(\frac{5}{7} \times \frac{3}{3}\right) \\ &= 4\frac{35}{21} - \frac{15}{21} = 4\frac{20}{21} \end{aligned}$$

$$\text{g. } 18\frac{3}{4} - 5\frac{7}{8} =$$

$$\text{h. } 17\frac{1}{5} - 2\frac{5}{8} =$$



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1. Are the following expressions greater than or less than 1? Circle the correct answer.

- a. $\frac{1}{2} + \frac{4}{9}$ greater than 1 less than 1
- b. $\frac{5}{8} + \frac{3}{5}$ greater than 1 less than 1
- c. $1\frac{1}{5} - \frac{1}{3}$ greater than 1 less than 1
- d. $4\frac{3}{5} - 3\frac{3}{4}$ greater than 1 less than 1

Think: What do you know about each _____
 • Is each fraction closer to the # 0 or 1?
 • watch operation → are you going to make a larger or smaller # for answer
 • Draw visual to help you decide what # you are closer to (# line, picture)

2. Are the following expressions greater than or less than $\frac{1}{2}$? Circle the correct answer.

- a. $\frac{1}{5} + \frac{1}{4}$ greater than $\frac{1}{2}$ less than $\frac{1}{2}$
- b. $\frac{6}{7} - \frac{1}{6}$ greater than $\frac{1}{2}$ less than $\frac{1}{2}$
- c. $1\frac{1}{7} - \frac{5}{6}$ greater than $\frac{1}{2}$ less than $\frac{1}{2}$
- d. $\frac{4}{7} + \frac{1}{8}$ greater than $\frac{1}{2}$ less than $\frac{1}{2}$

Think: what do you know about each _____
 • Is each fraction closer to 0 or $\frac{1}{2}$?
 • watch operation → are you going to have a larger or smaller # for answer
 • Draw a visual to help you decide what # you are closer to (# line, picture)

3. Use >, <, or = to make the following statements true.

- a. $5\frac{4}{5} + 2\frac{2}{3}$ _____ $8\frac{3}{4}$
- b. $3\frac{4}{7} - 2\frac{3}{5}$ _____ $1\frac{4}{7} + \frac{3}{5}$
- c. $4\frac{1}{2} + 1\frac{4}{9}$ _____ $5 + \frac{13}{18}$
- d. $10\frac{3}{8} - 7\frac{3}{5}$ _____ $3\frac{3}{8} + \frac{3}{5}$

RK

4. Is it true that $5\frac{2}{3} - 3\frac{3}{4} = 1 + \frac{2}{3} + \frac{3}{4}$? Prove your answer.

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

$$\frac{17}{3} - \frac{15}{4} = 1 + \frac{5}{12}$$

$$1\frac{11}{12} \neq 2\frac{5}{12}$$

No, it is not equal.

$$\frac{2}{3} = \frac{8}{12}$$

$$\frac{3}{4} = \frac{9}{12}$$

$$\frac{17}{12} = 1\frac{5}{12}$$

5. A tree limb hangs $5\frac{1}{4}$ feet from a telephone wire. The city trims back the branch *before* it grows within $2\frac{1}{2}$ feet of the wire. Will the city allow the tree to grow $2\frac{3}{4}$ more feet?

6. Mr. Kreider wants to paint two doors and several shutters. It takes $2\frac{1}{8}$ gallons of paint to coat each door and $1\frac{3}{5}$ gallons of paint to coat all of his shutters. If Mr. Kreider buys three 2-gallon cans of paint, does he have enough to complete the job?

Name _____

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1. Rearrange the terms so that you can add or subtract mentally. Then, solve.

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

b. $3\frac{1}{6} - \frac{3}{4} + \frac{5}{6}$
 $\downarrow \quad \quad \quad \swarrow$
 $3\frac{1}{6} + \frac{5}{6} - \frac{3}{4} =$
 $4 - \frac{3}{4} =$
 $3\frac{1}{4}$

Think:
 • change the order of the fractions to make the problem simpler.

c. $5\frac{5}{8} - 2\frac{6}{7} - \frac{2}{7} - \frac{5}{8}$

d. $\frac{7}{9} + \frac{1}{2} - \frac{3}{2} + \frac{2}{9}$

W/P

2. Fill in the blank to make the statement true.

a. $7\frac{3}{4} - 1\frac{2}{7} - \frac{3}{2} =$ _____

b. $9\frac{5}{6} + 1\frac{1}{4} + 2\frac{11}{12} = 14$
 rearrange the terms $\rightarrow 14 - (9\frac{5}{6} + 1\frac{1}{4}) =$ _____ add the wholes (9 + 1 = 10)
 $14 - (10 + \frac{5}{6} + \frac{1}{4}) =$ _____ find like units
 $14 - (10 + \frac{10}{12} + \frac{3}{12}) =$ _____ combine like fraction units
 $14 - (10 + \frac{13}{12}) =$ _____ change improper to mixed number
 $14 - 11\frac{1}{12} =$ _____ combine whole and mixed number
 $14 - 11 - \frac{1}{12} =$ _____ subtract whole numbers
 $3 - \frac{1}{12} = 2\frac{11}{12}$ subtract fraction part from whole

c. $\frac{7}{10} -$ _____ $+ \frac{3}{2} = \frac{6}{5}$

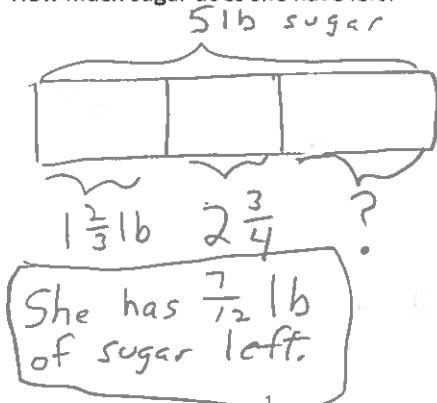
W/P

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Solve the word problems using the RDW strategy. Show all of your work.

1. A baker buys a 5 lb bag of sugar. She uses $1\frac{2}{3}$ lb to make some muffins and $2\frac{3}{4}$ lb to make a cake. How much sugar does she have left?



$$\begin{aligned}
 1\frac{2}{3} + 2\frac{3}{4} &= 3\frac{2}{3} + \frac{3}{4} \\
 &= 3\frac{8}{12} + \frac{9}{12} \\
 &= 3\frac{17}{12} \\
 5 - 4\frac{5}{12} &= 1 - \frac{5}{12} \\
 &= \frac{7}{12} \text{ sugar used P.K.}
 \end{aligned}$$

2. A boxer needs to lose $3\frac{1}{2}$ kg in a month to be able to compete as a flyweight. In three weeks, he lowers his weight from 55.5 kg to 53.8 kg. How many kilograms must the boxer lose in the final week to be able to compete as a flyweight?

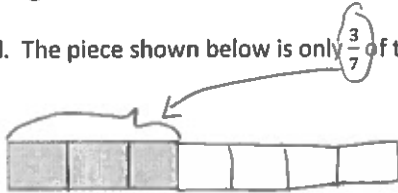
3. A construction company builds a new rail line from Town A to Town B. They complete $1\frac{1}{4}$ miles in their first week of work and $1\frac{2}{3}$ miles in the second week. If they still have $25\frac{3}{4}$ miles left to build, what is the distance from Town A to Town B?

Name _____

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Draw the following roads.

- a. 1 road. The piece shown below is only $\frac{3}{7}$ of the whole. Complete the drawing to show the whole road.



- b. 1 road. The piece shown below is $\frac{1}{6}$ of the whole. Complete the drawing to show the whole road.



- c. 3 roads, A, B, and C. B is three times longer than A. C is twice as long as B. Draw the roads. What fraction of the total length of the roads is the length of A? If Road B is 7 miles longer than Road A, what is the length of Road C?

A =

B = 3 × A

C = 2 × B or 2 × (3 × A)

A 3.5

B 3.5 3.5

$7 \div 2 = 3.5$

C 3.5 3.5 3.5 3.5 3.5 3.5

$3.5 \times 6 = 21.0$

Road A = $\frac{1}{16}$ of total length of roads.

Length of Road C is 21.0 miles.

- d. Write your own road problem with 2 or 3 lengths.