Modeling and Solving Fair Share Number Stories

Home Link 3-1

NAME DATE TIME

SRB 163-164

Use a drawing to model each number story. Then solve.

1. You are sharing 2 loaves of bread with 5 friends. You want each person to get a fair share. How much bread will each person get?

   Model:

   Solution: ______________________

2. Betsy and 3 of her friends are splitting a whole watermelon. There are 6 circular slices of watermelon. How many slices of watermelon will each person get?

   Model:

   Solution: ______________________

3. Darius and Matthew have 3 fruit bars. They are both hungry after playing football and decide to split the fruit bars evenly. How much fruit bar will each boy get?

   Model:

   Solution: ______________________

Practice

Make an estimate and solve. Show your work on the back of this page.

4. $$\begin{array}{r} 2{,}598 \\ \times \quad 3 \\ \hline \end{array}$$ Estimate: ______________________

5. $$\begin{array}{r} 417 \\ \times\ 63 \\ \hline \end{array}$$ Estimate: ______________________

Fair Share Problems with Number Models

Home Link 3-2

NAME DATE TIME

Solve each number story. Draw a picture and write a number model to show how you solved each problem.

SRB 163-164

1. Mr. Chu is slicing 4 cantaloupes for his class. There are 24 students in the class. If Mr. Chu cuts the cantaloupes to make an equal portion for each student, how much of a whole cantaloupe will each student get?

   ____________________ cantaloupe

   Number model: ________________________

2. Two classrooms are sharing 7 packages of unit cubes. If the packages are split evenly, how many packages will each classroom receive?

   ____________________ packages

   Number model: ________________________

3. Jane, Max, and Greg are splitting a 10-ounce bag of popcorn. If they share the popcorn equally, how many ounces of popcorn will each person get?

   ____________________ ounces

   Number model: ________________________

Practice

4. **a.** $540 \div 9 =$ ________
   b. $540 \div 90 =$ ________
   c. $5{,}400 \div 90 =$ ________

5. **a.** $320 \div 80 =$ ________
   b. $3{,}200 \div 8 =$ ________
   c. $32{,}000 \div 800 =$ ________

Division Number Stories with Remainders

Home Link 3-3

NAME DATE TIME

For each number story, write a number model with a letter for the unknown. Then solve. You may draw a picture to help. Explain what you did with the remainder.

SRB 44, 113-114

1. Ms. Davis's class is having a picnic. There are 27 students in her class. If each picnic table seats 6 people, how many picnic tables will the class need so that all of the students and Ms. Davis have a seat?

   Number model: ______________________

   Quotient: ________ Remainder: ________

   Answer: They will need ________ tables.

   Circle what you did with the remainder.

   Ignored it   Reported it as a fraction   Rounded the quotient up

   Why? ____

2. Nolan brought 2 boxes of fruit bars to share with his football team. There are 12 bars in each box and 16 people on the team. If the bars are shared equally, how many fruit bars will each person get?

   Number model: ______________________

   Quotient: ________ Remainder: ________

   Answer: ______________________

   Circle what you did with the remainder.

   Ignored it   Reported it as a fraction   Rounded the quotient up

   Why? ____

Practice

Evaluate each expression.

3. $8 + (6 * 3)$ ________
4. $(6 + 2) * (9 - 5)$ ________
5. $12 \div [3 * (10 \div 5)]$ ________
6. $\{20 \div [7 + (6 \div 2)]\} * 5$ ________

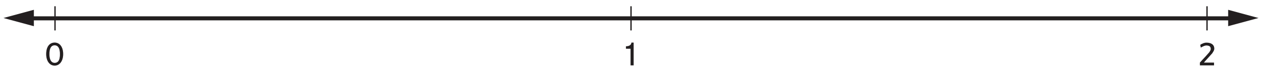
Fractions on a Number Line

Home Link 3-4

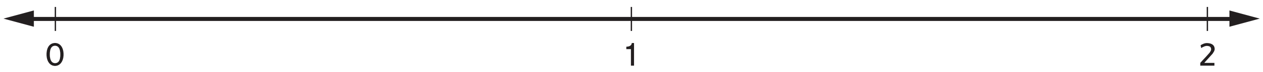
NAME DATE TIME

SRB 158-161, 171-173

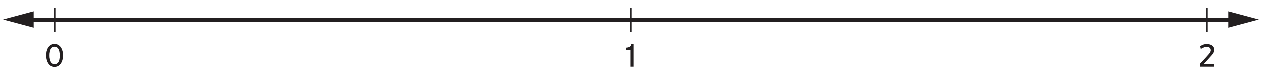
① Divide this number line to show halves. Label each tick mark with a fraction.



② Divide this number line to show fourths. Label each tick mark with a fraction.



③ Divide this number line to show eighths. Label each tick mark with a fraction.



Use the number lines above or the Fraction Number Lines Poster to solve Problems 4–6.

④ Which number is greater? Circle the greater number in each pair.

a. $\frac{3}{8}$ or $\frac{1}{4}$ **b.** $\frac{2}{2}$ or $\frac{5}{4}$ **c.** $1\frac{5}{8}$ or $\frac{3}{2}$

⑤ Rename each fraction as a mixed number.

a. $\frac{6}{4}$ = ________ **b.** $\frac{3}{2}$ = ________ **c.** $\frac{13}{8}$ = ________

⑥ Rename each mixed number as a fraction.

a. $1\frac{2}{2}$ = ________ **b.** $1\frac{6}{8}$ = ________ **c.** $1\frac{1}{4}$ = ________

Practice

⑦ Write each number in standard notation.

a. $3 * 10^2$ = ________________

b. $5 * 10^3$ = ________________

c. $8 * 10^4$ = ________________

⑧ Write each number as a product, using exponential notation.

a. 900 = ________________

b. 6,000 = ________________

c. 70,000 = ________________

More *Fraction Top-It*

Home Link 3-5

NAME DATE TIME

Eddie and his friend are playing another version of *Fraction Top-It*. Each player turns over 4 number cards and places them as the digits on the gameboard. The player with the larger quotient wins the round.

SRB 27-29

Eddie's cards are 2, 6, 3, and 4.

1. If you were Eddie, how would you place your cards? What is the quotient?

$$\frac{(\square + \square)}{(\square + \square)}$$

2. What rule can Eddie use to create the largest possible fraction? Explain why this rule works.

Practice

3. Write the value of the 3 in each of the following numbers.

a. 1,**3**22,072 ________________

b. 8,2**3**6,914 ________________

c. 5,70**3**,000 ________________

d. 4,091,**3**16 ________________

e. 8,192,0**3**8 ________________

f. 7,025,94**3** ________________

Fractions and Number Sense

Home Link 3-6

NAME DATE TIME

SRB 174-176, 181-185

① Josie calculated $\frac{1}{5} + \frac{1}{2}$ and said the answer was $\frac{2}{7}$.

Explain how you know that Josie's answer does not make sense.

Did you need to calculate an exact answer to know that Josie's answer doesn't make sense? Tell someone at home why you did or didn't need to calculate an exact answer.

② Renee calculated $\frac{3}{6} + \frac{2}{4}$ and said the answer was $\frac{5}{10}$. Josie solved the same problem and said the answer was 1.

Whose answer is more reasonable? Explain how you know.

③ Two students are playing *Build-It*. To win, all 5 cards must be in order from smallest to largest. Circle the winning set of cards.

$\frac{2}{9}$	$\frac{2}{8}$	$\frac{2}{3}$	$\frac{7}{8}$	$\frac{11}{12}$

Closest to 0 → Closest to 1

Player 1

$\frac{2}{8}$	$\frac{2}{9}$	$\frac{3}{6}$	$\frac{5}{7}$	$\frac{5}{8}$

Closest to 0 → Closest to 1

Player 2

Practice

Insert grouping symbols to make true number sentences.

④ $6 \times 4 + 1 = 30$

⑤ $12 \div 3 \times 2 - 1 = 1$

⑥ $48 \div 6 + 5 \times 3 = 39$

⑦ $50 \,/\, 10 + 10 \,/\, 2 = 5$

Estimating with Fractions

Home Link 3-7

NAME DATE TIME

For Problems 1 and 2, circle the best estimate. Explain your estimation strategies to someone at home.

SRB 182

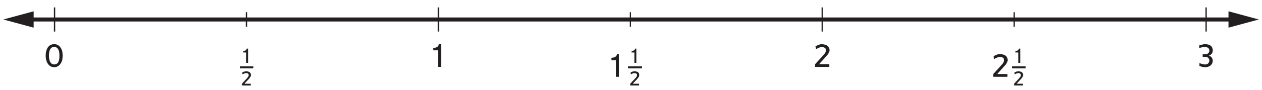
1. The sum of $\frac{3}{4}$ and $\frac{18}{19}$ is closest to ________.

   0 1 2

2. $2\frac{3}{8} - \frac{3}{4}$ is ________.

   less than 2 greater than 2

For Problems 3–5, refer to the number line below.



3. Henry ran $1\frac{5}{8}$ miles in the morning and $\frac{9}{10}$ mile in the afternoon. About how many miles did he run in all? Place an X on the number line to show your estimate.

4. Tia ran $2\frac{7}{8}$ miles. George ran $1\frac{1}{10}$ miles. About how many more miles did Tia run than George? Place a star on the number line to show your estimate.

5. Explain how you estimated the difference in Problem 4.

____

____

Practice

Use $V = B \times h$ or $V = l \times w \times h$ to solve.

6. What is the volume of a box that is 14 inches long, 7 inches wide, and 10 inches high?

   The volume of the box is

   ________________ cubic inches.

   Number model:

   ____

7. The floor of Raj's classroom has an area of 525 feet. The ceiling is 12 feet high. What is the volume of Raj's classroom?

   The volume of the classroom is

   ________________ ft^3.

   Number model:

   ____

Renaming Fractions

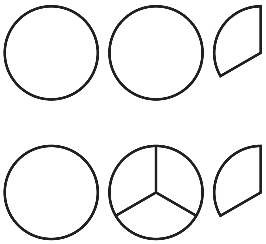
Home Link 3-8

NAME DATE TIME

You can make trades to find new names for mixed numbers and fractions greater than 1.

SRB 171-173

Example 1:



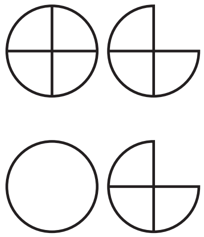
Start with $2\frac{1}{3}$.

Trade 1 whole for $\frac{3}{3}$.

Now you have 1 whole and 4 thirds, or $1\frac{4}{3}$.

Another name for $2\frac{1}{3}$ is $1\frac{4}{3}$.

Example 2:



Start with $\frac{7}{4}$.

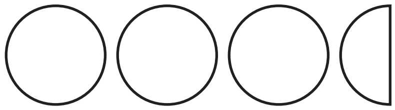
Trade $\frac{4}{4}$ for 1 whole.

Now you have 1 whole and 3 fourths, or $1\frac{3}{4}$.

Another name for $\frac{7}{4}$ is $1\frac{3}{4}$.

In Problems 1 and 2, find at least one more name for each fraction or mixed number. Do not change the denominator. Check that your trades were fair and record the trades you made. You can use the pictures to help you think about making trades.

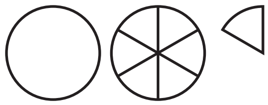
① $3\frac{1}{2}$



Name: ______________________

Trade: ______________________

② $1\frac{7}{6}$



Name: ______________________

Trade: ______________________

In Problems 3 and 4, cross out the fraction or mixed number that does **not** name the same number as the others in the group. You can draw pictures to help you.

③ $4\frac{1}{8}$ $\frac{33}{8}$ $3\frac{5}{8}$

④ $3\frac{6}{4}$ $1\frac{10}{4}$ $4\frac{2}{4}$

Practice

Make an estimate and solve. Use the back of the paper if you need more space.

⑤ Estimate: ________

$$\begin{array}{r} 289 \\ \times\ \ 13 \\ \hline \end{array}$$

⑥ Estimate: ________

$$\begin{array}{r} 72 \\ \times\ \ 9 \\ \hline \end{array}$$

Solving More Mixed-Number Stories

Home Link 3-9

NAME DATE TIME

SRB 178-185

For each story:

- Write a number model with a letter for the unknown.
- Make an estimate.
- Solve. You can use a drawing or number line to help.
- Use your estimate to check whether your answer makes sense.

1. To make purple paint, Stephen mixed $1\frac{1}{4}$ gallons of red paint with $1\frac{3}{4}$ gallons of blue paint. How many gallons of purple paint did he make?

   Number model: ____________________

   Estimate: ________________________

   Answer: ________ gallons

2. Ethel had 4 feet of ribbon. She used $1\frac{1}{2}$ feet for a craft project. How many feet of ribbon does she have left?

   Number model: ____________________

   Estimate: ________________________

   Answer: ____________ feet

3. A macaroni and cheese recipe calls for $1\frac{2}{3}$ cups of shredded cheddar cheese and $1\frac{2}{3}$ cups of shredded mozzarella cheese. How many cups of cheese are used in the recipe?

   Number model: ____________________

   Estimate: ________________________

   Answer: ____________ cups

Practice

Divide. Show your work on the back of the page.

4. $6{,}125 \div 44 = ?$

   Estimate: ____________________

   Answer: ____________

5. $2{,}967 \div 21 = ?$

   Estimate: ____________________

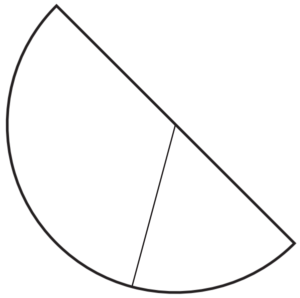
   Answer: ____________

Fraction Addition with Circle Pieces

NAME DATE TIME

SRB 189

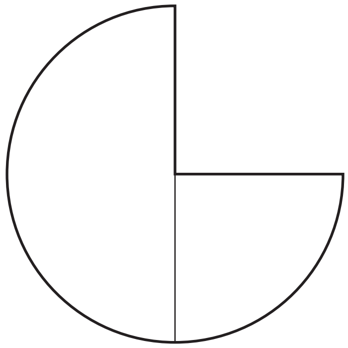
1 **a.** These fraction circle pieces show $\frac{1}{3} + \frac{1}{6}$. Draw a line to show how you could use fraction circle pieces to change the problem to $\frac{2}{6} + \frac{1}{6}$.



b. Complete the number sentences.

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

2 **a.** What fraction addition problem do these fraction circles show? ______________



b. Draw a line to show how you could use the fraction circle pieces above to change the problem so that both fractions have the same denominator.

c. Complete the number sentences.

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

3 Explain why it is easier to add fractions when they have the same denominator.

____

____

____

Practice

Write an expression to model each situation.

4 Sandra picked 10 blue flowers and 16 red flowers. Then she divided the flowers equally into 2 bouquets. ________________

5 A recipe called for $\frac{2}{3}$ cup flour. Kyle doubled the recipe. Then he added $\frac{1}{4}$ cup more flour to make the dough less sticky. ______________________________

Playing *Fraction Capture*

NAME DATE TIME

SRB 171-173, 305

① Cole was playing *Fraction Capture*. He recorded his addition expressions, but he forgot to write down the fractions he formed with his dice rolls.

Fill in the fraction column of Cole's record sheet with fractions he might have formed.

Round	Fraction	Fraction Addition Expression
1		$\frac{1}{2} + \frac{1}{2} + \frac{1}{5}$
2		$\frac{1}{2} + \frac{1}{3} + \frac{1}{6} + \frac{1}{2} + \frac{1}{3} + \frac{1}{6}$
3		$\frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2}$
4		$\frac{1}{6} + \frac{1}{6}$
5		$\frac{1}{2} + \frac{1}{3} + \frac{1}{2}$

② Mackenzie was playing *Fraction Capture* and rolled a 6 and a 2.

a. Write an addition expression to show fractions she could have captured if she used her dice rolls to form $\frac{2}{6}$.

____

b. Write an addition expression to show fractions she could have captured if she used her dice rolls to form $\frac{6}{2}$.

____

Practice

Write each of the fractions below as a division expression. Then write each fraction as a whole number or a mixed number.

③ $\frac{5}{4}$

Division expression: ________

Mixed or whole number: ________

④ $\frac{16}{8}$

Division expression: ________

Mixed or whole number: ________

⑤ $\frac{14}{3}$

Division expression: ________

Mixed or whole number: ________

⑥ $\frac{17}{12}$

Division expression: ________

Mixed or whole number: ________

Solving Fraction Number Stories

Home Link 3-12

NAME DATE TIME

Solve each number story. Show your work and make sure your answer is clear.

SRB 30, 178-181

1. Anton is training for a cross-country race. He ran $2\frac{2}{4}$ miles on Saturday and $3\frac{1}{4}$ miles on Sunday. How much farther did Anton run on Sunday? How do you know?

Answer: ______________________________

____

2. Nina had 9 apples to share with 5 of her friends. If all 6 people get an equal share, how many apples will each person get? How do you know?

Answer: ______________________________

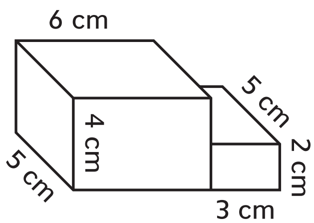
____

3. Anna and Daniel are playing *Fraction Capture.* Anna is trying to find sections that add up to $\frac{3}{4}$. She knows that $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \frac{3}{4}$, but she wants to earn an extra point for using a fraction with a different denominator. Write another number sentence Anna could use to show a sum of $\frac{3}{4}$.

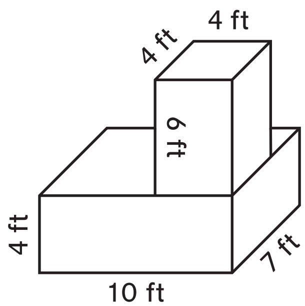
Answer: ______________________________

Practice

Find the volume of each figure below.

4. 

Volume = ______________

5. 

Volume = ______________

Solving Fraction-Of Problems

Home Link 3-13

NAME DATE TIME

SRB 195

1. What is $\frac{1}{2}$ of 24?

   Answer: ________

2. What is $\frac{1}{3}$ of 24?

   Answer: ________

3. What is $\frac{1}{4}$ of 24?

   Answer: ________

4. An animal shelter has 36 pets available for adoption. $\frac{1}{4}$ of them are puppies. How many are puppies?

   ________ of the pets are puppies.

5. A teacher had 20 ounces of water in her water bottle. She drank $\frac{1}{5}$ of the water. How many ounces did she drink?

   She drank ________ ounces.

Practice

Make an estimate. Then divide. Write your remainder as a fraction.
Use your estimate to check the reasonableness of your answer.

6. 7,002 ÷ 53 = ?

   Estimate: ________________

   Answer: ________________

7. 2,956 ÷ 67 = ?

   Estimate: ________________

   Answer: ________________

Solving More Fraction-Of Problems

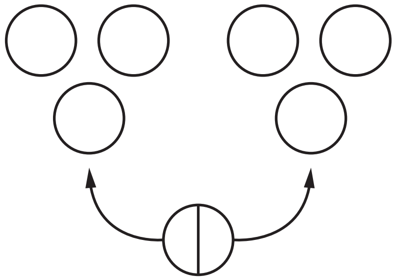
Home Link 3-14

NAME DATE TIME

SRB 195-196

In today's lesson you used drawings to solve fraction-of problems that do not have whole number answers. For example, you could find $\frac{1}{2}$ of 7 by drawing:

Today you used drawings to solve fraction-of problems that do not have whole number answers. For example, you could find $\frac{1}{2}$ of 7 by making a drawing like the one at the right.



(1) What is $\frac{1}{2}$ of 7? ______

(2) What is $\frac{1}{3}$ of 7? ______

(3) What is $\frac{1}{4}$ of 7? ______

(4) Kai had 15 yards of kite string. He had to cut off $\frac{1}{4}$ of it when his kite got stuck in a tree. How much string did he cut off?

He cut off ______ yards of string.

(5) Joan made 3 quarts of soup. She ate $\frac{1}{7}$ of the soup each day for a week. How much soup did she eat each day?

She ate ______ quart of soup.

Practice

Make an estimate. Then multiply. Use U.S. traditional multiplication for at least one problem. Use your estimate to check the reasonableness of your answer. Show your work on the back.

(6) 35 * 49 = ?

Estimate: ______

Answer: ______

(7) 209 * 63 = ?

Estimate: ______

Answer: ______