Decomposing Fractions

Home Link 5-1

NAME

DATE TIME

Family Note In class today your child learned to decompose fractions into smaller parts. For example, $\frac{5}{6}$ can be decomposed into $\frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{3}{6} + \frac{3}{6}$, $\frac{1}{6} + \frac{4}{6}$, and so on.

Complete the name-collection boxes using equations.



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(3) Decompose $\frac{8}{12}$ in more than one way into a sum of fractions with the same denominator.

Record each decomposition with an equation and justify it by shading the circle.



644 * 4 = _____

y _____ = 39 * 50

SRB



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195

Adding Fractions

Home Link 5-3

DATE TIME

SRB 47, 160-

Solve the number stories. Use a different strategy for each one.

- (1) The park department wants to have new trees planted. They agreed that $\frac{1}{10}$ of the trees will be oak, $\frac{3}{10}$ will be pine, and $\frac{2}{10}$ will be willow. They are undecided about the rest. What fraction of the trees will be oak, willow, or pine?
 - a. Fill in the whole box.
- **b.** Number model with unknown:
- c. One way to solve a fraction addition problem:
- d. Answer (with unit):
- (2) The Patels have a DVD collection. Three-eighths of the DVDs are animated. Two-eighths of them are mysteries. One-eighth are comedies. The rest are about travel. What fraction of the DVDs are *not* about travel?

	a.	Fill in the whole box.	b.	Number model with unknown:
		Whole	a d d : t :	
	с.	A different way to solve a fraction a		on problem:
	d.	Answer (with unit):		
Add.				
3	$\frac{2}{5}$ +	$\frac{1}{5} = $	4	$\frac{1}{2} + \frac{3}{2} = $
5	$\frac{5}{6}$ +	$\frac{5}{6} = $	6	$\frac{1}{3} + \frac{2}{3} + \frac{1}{3} = $
Pra	ctic	e		
Repr	resent	t the fractions as decimals.		

$(7) \quad \frac{4}{10} = \underline{\qquad} \qquad (8) \quad \frac{40}{100} = \underline{\qquad} \qquad (9) \quad \frac{6}{10} = \underline{\qquad} \qquad (10) \quad \frac{6}{100} = \underline{\qquad}$

Mixed-Number Addition

Home Link 5-4

NAME

DATE TIME

SRB 47, 162-163

Solve the number stories. Use a different strategy for each one.

- (1) The art class had a box filled with balls of yarn. The students used $6\frac{2}{3}$ balls for a project. There are now $2\frac{2}{3}$ balls left in the box. How many balls of yarn did the art class start with?
 - **a.** Fill in the whole box.
- **b.** Number model with unknown:

- c. One way to solve a mixed-number addition problem:
- d. Answer (with unit): _____
- (2) Mrs. Meyers is growing vines along the sides of her house. On the west side the vines are $2\frac{4}{10}$ meters tall. On the east side the vines are $5\frac{8}{10}$ meters taller than the ones on the west side. How tall are the vines on the east side?
 - **a.** Fill in the whole box.
- **b.** Number model with unknown:



c. A different way to solve a mixed-number addition problem:

d. Answer (with unit):

Add. Show your work.	
$3 5\frac{2}{6} + 3\frac{1}{6} = _$	(4) $1\frac{5}{8} + 2\frac{3}{8} = $
5 $3\frac{3}{4} + 2\frac{3}{4} = $	$6 3\frac{2}{5} + 1\frac{4}{5} + 2\frac{3}{5} = _$

Practice



Adding Tenths and Hundredths

Home Link 5-5		
NAME	DATE	TIME

Use shov	what you know about equivalent fractions to add. Write an equation to v your work.	SRB 166-168
1	2 tenths + 15 hundredths	
	Equation (in words):	
2	$\frac{68}{100} + \frac{3}{10}$	
	Equation:	
3	$\frac{1}{10} + \frac{50}{100}$	
	Equation:	
4	$\frac{4}{10} + \frac{60}{100} + \frac{3}{10} + \frac{81}{100}$	
	Equation:	
5	$1\frac{3}{10} + 5\frac{64}{100}$	
	Equation:	
6	$3\frac{22}{100} + 2\frac{8}{10}$	
	Equation:	
7	$\frac{15}{10} + \frac{78}{100}$	
	Equation:	
8	Nicholas shaded $\frac{40}{100}$ of his hundreds grid. Victor shaded $\frac{5}{10}$ of his grid.	
	Who shaded more?	
	How much did they shade in all? of a grid	
Pra	ctice	
Write	e three equivalent fractions.	

Fraction Error Finder



Consider this problem:

A king owns land outside of his castle.

He has partitioned the land to give as gifts to his 5 sons.



What fraction of the land did the king give to each of his sons?

Here is Zeke's solution:

Andy $got \frac{1}{2}$ Bill $got \frac{1}{5}$ Carl $got \frac{1}{5}$ Dirk $got \frac{1}{8}$ Evan $got \frac{1}{8}$

(1) Identify Zeke's two errors, correct them, and explain why your answer is correct.

2 Write a fraction addition equation to represent the correct answers and show the sum of the pieces of land.

Practice

Use U.S. traditional addition and subtraction.

3	8,936 + 6,796 =	4	635 - 392 =
5	6,386 + 4,205 =	6	900 - 463 =



Subtracting Fractions

Home Link 5-7

NAME

DATE TIME

Solv	e the	number stories. Use a different strategy for each one.	۲B					
1) Elijah still had $\frac{4}{5}$ of his allowance at the end of the month. Then he spent $\frac{3}{5}$ of his original allowance on a movie ticket and popcorn. How much of Elijah's allowance was left?							
	a.	Fill in the whole box.						
	b.	Number model with unknown:						
	C.	One way to solve a fraction subtraction problem:						
	d.	Answer (with unit):						
2	Ken com Lyd	Ira's computer battery had $\frac{q}{10}$ of a charge. After her sister Lydia borrowed the puter, the battery had $\frac{3}{10}$ of a charge left. How much of the battery charge did a use?						
	a.	Fill in the whole box.						
	b.	Number model with unknown:						
	C.	Another way to solve a fraction subtraction problem.						
	d.	Answer (with unit):						
Sub	tract.							
3	$\frac{2}{2}$ –	$\frac{1}{2} = $ (4) $\frac{11}{6} - \frac{4}{6} = $ (5) $= 1 - \frac{1}{5}$	1 5					
Pra	ctio	8						
6	8,93	6 + 6,796 = (7) = 4,635 - 2,392						
8		= 46,386 + 4,205 (9) 65,900 - 48,463 =						

Mixed-Number Subtraction

Home Link 5-8

DATE TIME

Solv	e the	e number stories. Use a different stra	tegy for each one.	SRB						
1	The have	e chocolate chip cake recipe calls for 3 ve $1\frac{2}{3}$ cups at home. How much more	$3\frac{1}{3}$ cups of milk. We or milk do we need?	Nly Whole						
	a.	Fill in the whole box.								
	b.	Number model with unknown:								
	C.	One way to solve a mixed-number s	ubtraction problem:							
	d.	Answer (with unit):								
2	Lourdes is listening to an audio book that is 9 hours long. She has listened for $6\frac{1}{6}$ hours so far. How many hours of listening time are left?									
	a.	Fill in the whole box.								
	b.	Number model with unknown:								
	C.	A different way to solve a mixed-nur	nber subtraction proble	em:						
	d.	Answer (with unit):								
Sub	tract.	t. Show your work.								
3	$4\frac{1}{2}$	$\frac{1}{2} - 3\frac{1}{2} = $ (4	$_{-} = 5\frac{8}{12} - 5\frac{3}{12}$						
5	$4\frac{2}{5}$	$\frac{4}{5} - 1\frac{4}{5} = $ (6	$= 9\frac{4}{10} - 3\frac{8}{10}$						
Pra	ctio	ce								
7		= 54 * 10 (8)	63 * 100 =							
9	86	* 94 = 10	5,715 * 6 =							

Student Growth

Home Link 5-9		
NAME	DATE	TIME

SRB 162-163, 214-215

Mrs. Welch surveyed her students about how much they had grown over the past year. This is the data she gathered.

Student Growth Over the Past Year (to the nearest $\frac{1}{2}$ inch)			1	Plo	ot th	ne da	ata s	set o	n th	e lii	ne p	olot.						
	$1\frac{1}{2}$	$1\frac{1}{2}$							Title							_		
	2	$2\frac{1}{2}$																
	$2\frac{1}{2}$	2																
	$\frac{1}{2}$	$1\frac{1}{2}$																
	$2\frac{1}{2}$	$\frac{1}{2}$																
	1	2																
	$1\frac{1}{2}$	2									+		+				-	
	$1\frac{1}{2}$	$\frac{1}{2}$								_						_		
	$3\frac{1}{2}$	$1\frac{1}{2}$																
	1	1		_				L	abel									
	1	$2\frac{1}{2}$																
	2	2																
	$2\frac{1}{2}$	$1\frac{1}{2}$																
Use	the complet	ted line plot to a	inswer tl	he c	ques	stion	s.											
2	What is the	e greatest numb	er of inc	ches	sas	stud	ent	grew	in a	ye	ar?							
	About	inch(es)	The	lea	st?	Abo	ut _		i	ncł	n(es)						
3	What is the	e difference betw	ween the	e gre	eate	est a	nd t	the le	east	nur	nbe	er of	f ind	ches	s gr	owr	?ו	
	Number m	odel with unknow	wn:						Ans	we	r:			_ inc	ch(e	es)		

Practice

Circle the three equivalent fractions in each group.

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Rotations

SRB

Family Note If your child needs help with the following problems, consider putting up signs in a room in your home to indicate the directions north, south, east, and west. Do the turns with your child. left turn right turn Please return this Home Link to school tomorrow. counterclockwise clockwise

Make the turns described below. Show which way you face after each turn by:

- Drawing a dot on the circle.
- Labeling the dot with a letter.

Example: Face north.

Do a $\frac{1}{2}$ turn counterclockwise.

On the circle, mark the direction you are facing with the letter A.



- (1) Face north. Do a $\frac{1}{4}$ turn clockwise. Mark the direction you are facing with the letter B.
- Face east. Do a $\frac{1}{4}$ turn counterclockwise. Mark the direction $(\mathbf{3})$ you are facing with the letter D.
- (5) Face north. Make a clockwise turn that (6) is more than a $\frac{1}{2}$ turn but less than a $\frac{3}{4}$ turn. Mark the direction you are facing with the letter F.
- (2) Face north. Do a $\frac{3}{4}$ turn clockwise. Mark the direction you are facing with the letter C.
- Face west. Make less than a $\frac{1}{4}$ turn (4) clockwise. Mark the direction you are facing with the letter E.
 - Face north. Make a counterclockwise turn that is less than a $\frac{1}{2}$ turn but more than a $\frac{1}{4}$ turn. Mark the direction you are facing with the letter G.

Practice



416 * 6 = _____ 1,373 * 7 = _____

- (9)
 - _____ = 597 * 4

Estimating Angle Measures

Home Link 5-11

NAME

DATE TIME

Family Note Our class has been learning about turns, angles, and angle measures. A full turn can be represented by an angle of 360°, a $\frac{1}{2}$ turn by an angle of 180°, a $\frac{1}{4}$ turn by an angle of 90°, and so on. Help your child match the measures below with the angles pictured. (It is not necessary to measure the angles with a protractor.)



Home Link 5-12 **Folding Shapes** NAME DATE TIME **Family Note** Our class has been studying lines of symmetry—lines that divide figures into mirror images. Help your child look for symmetric shapes in books, newspapers, and magazines, and in objects around the house, such as windows, furniture, dishes, and so on. Please bring your cutouts to school tomorrow. SRB Fold a sheet of paper in half. Cut off the folded corner, as (1) 238 shown. Before you unfold the cutoff piece, guess its shape. Unfold the cutoff piece. What shape is it? a. How many sides of the cutoff b. piece are the same length? _____ sides How many angles are the same size? ______ angles C. The fold is a line of symmetry. Does the d. cutoff piece have any other lines of symmetry? ____ (2) Fold another sheet of paper in half. Fold it in half again. Make a mark on both folded edges 2 inches from the folded corner. Cut off the folded corner. Before 2 in. you unfold the cutoff piece, guess its shape. Unfold the cutoff piece. What shape is it? a. b. Are there any other lines of symmetry besides the fold lines? _____ On the back of this paper, draw a picture of the C. cutoff shape. Draw all of its lines of symmetry.

Practice

 (3) $81 \div ___ = 9$ (4) $___ \div 9 = 6$

 (5) $7 = 42 \div ___$ (6) $___ \div 9 = 8$

 (7) $36 \div ___ = 4$ (8) $8 = ___ \div 6$

Expressing Answers to Number Stories

Home Link 5-13

NAME

DATE TIME

Family Note Today students learned to express solutions to multistep number stories using correct units and single number models. Have your child explain the steps for solving each of the problems below, and then help him or her write these steps as a single number model, including a letter for the unknown quantity.

Solve. Record a long number model with a letter for the unknown quantity and write the answer with the correct unit. **SRB** 26, 47, 82-87

(1) Guillermo hires two painters to paint the walls of his living room. The painters each make \$42 an hour for an 8-hour workday. If the work takes 3 days, how much will Guillermo pay the painters?

Number model with unknown: _____

Estimate: ____

Answer (with unit):

(2) Blaine is on vacation in New York City and wants to collect magnets of places he visits to give to all his friends. The Times Square magnets cost \$2 each and come in sets of 4. The Statue of Liberty magnets cost \$3 each and come in sets of 5. If Blaine buys 12 sets of each type of magnet, how much will he pay?

Number model with unknown: _____

Estimate: _____

Answer (with unit): _____

Practice

3 45 ÷ 5 =	(4) 56 ÷ 8 =	(5) 54 ÷ 9 =
6 ÷ 9 = 4	(7) ÷ 6 = 6	8 ÷ 8 = 3

Unit 6: Family Letter

Home Link 5-14

NAME

DATE

TIME

Division; Angles

Division

In Unit 6 your child will divide multidigit numbers using extended division facts, multiples, area models, and partial quotients. Working with more than one division strategy helps students build conceptual knowledge and means that they have more than just one method to choose from. Throughout the unit students solve multistep division number stories involving dividends with multiple digits, learn the meaning of the remainders, and apply their division skills in real-life contexts.

The unit begins with extended division facts. Knowing that $24 \div 4 = 6$ enables students to see that $240 \div 4 = 60$; $240 \div 40 = 6$; $2,400 \div 4 = 600$; and so forth. Students play *Divide and Conquer*, where they practice dividing with extended facts. The confidence they build by working with extended division facts will help them to divide larger numbers with ease.

Students also learn the partial-quotients division method, in which the dividend is divided in a series of steps. The first example below illustrates a model of the partial-quotients method for $1,325 \div 9$. When students partition, or divide, the 1,325 into parts (900 + 360 + 63 + 2), it helps them develop their understanding of the algorithm. The second example uses the partial-quotients method. The quotients for each step are added together to give the final answer.

9						
		100 * 9 = 900	100	1005	9)1,325	
				- 900	- 900	100
			+	425	425	
1,325	5	40 * 9 = 360	40	- 360	- 360	40
			+	65	65	
		7 * 9 = 63		- 63	- 63	7
			147	2	2	147

Angles

Students continue their work with angle measurement and learn to use both full-circle and half-circle protractors. They learn that angle measurements can be added, and they use this understanding and properties of angles to find unknown angle measures.

Fraction Operations

Students continue working with addition and subtraction of fractions and mixed numbers. They apply their knowledge of multiplication to explore multiplying a fraction by a whole number.

Please keep this Family Letter for reference as your child works through Unit 6.

Vocabulary

Important terms in Unit 6:

complementary angles Angles with measures that equal 90° when added together.

extended division facts Variations of division facts involving multiples of 10, 100, and so on. For example, 720 \div 8 = 90 is an extended fact related to 72 \div 8 = 9.

partial quotients A way to divide in which the dividend is divided in a series of steps. The quotients for each step (called partial quotients) are added to give the final answer.

protractor A tool that measures angles in degrees.

Do-Anytime Activities

To work with your child on concepts taught in this unit, try these activities.

- 1. Practice extended division facts, such as $1,800 \div 30$.
- 2. Ask your child to help you divide something for dinner into equal portions for each member of your family. For example, ask, "How can we divide the 5 chicken breasts equally for the 4 of us?"
- 3. Ask questions like these:
 - What kind of angles do you see on a stop sign?
 - What types of angles are on our tile or wood floors, or on the walls?
 - What types of angles are in a rectangular sign?
 - What types of angles do you see in the supports for the bridge?
- **4.** Make up some situations such as those listed directly above, and encourage your child to draw a picture or diagram to show you how to solve it.

Building Skills through Games

In this unit your child will play the following games to increase his or her understanding of division and angles. For detailed instructions on how to play these games, please see the *Student Reference Book*.

Angle Add-Up See Student Reference Book, page 248. This game provides practice adding and subracting angle measures.

Divide and Conquer See *Student Reference Book*, page 254. This game for three players—the Caller, the Brain, and the Calculator—provides practice with extended division facts.

reflex angle An angle measure that is between 180° and 360°.



straight angle An angle that measures 180°.

supplementary angles Angles with measures that equal 180° when added together.

As You Help Your Child with Homework

As your child brings assignments home, it may be helpful to review the instructions together, clarifying them as necessary. The answers listed below will guide you through some of the Home Links in Unit 6.

Home Link 6-1

1.	4; 40			
3.	a. 5	b. 50	c. 500	d. 5
5.	a. 2	b. 20	c. 200	d. 2
7.	2.280		9. 6.335	

Home Link 6-2

1.	Sample answ	er: 2 * <i>s</i> =	60; 30 meters	S
----	-------------	--------------------	---------------	---

3. 3; 7; 45; 10 **5.** 60 **7.** 60

Home Link 6-3

- 40, 42, 44, 46, 48, 50;
 46 / 2 = b; 23 packages; 46 / 2 = 23
- **3.** 820 **5.** 999

Home Link 6-4

- Sample estimate: 45 / 3 = 15; 48 ÷ 3 = p; 16 pounds
- **3.** Sample answer: $\frac{3}{6}$; $\frac{4}{8}$
- **5.** Sample answer: $\frac{1}{4}$; $\frac{3}{12}$

Home Link 6-5

- Sample answer: 115 is the total number of students. 4 is the number of buses. 28 is the number of students per bus. 3 is the number of students left over after dividing evenly.
- Sample answer: Because 28 students from each class can be on a bus and there are 3 students left over, 3 buses will have 29 students. Then, because each bus needs a teacher, 3 buses will have 30 passengers on them and 1 bus will have 29 passengers.

Mr. Atkins's class has too many students to fit on one bus. So he can go on the bus with most of his students, and 2 students will have to ride on another bus. His bus will have 30 passengers.

Mrs. Gonzales's class has the fewest students. Because she has 27 students and adding herself makes 28 passengers, her bus will have room for Mr. Atkins's 2 extra students.

Mr. Bates and his students are a perfect fit for a bus. There will be 30 passengers on his bus.

Ms. Smith and her students fit on a bus, with room for one more. However, that spot is not needed.

3. $\frac{7}{8}$ **5.** $\frac{2}{5}$

Home Link 6-6

1.	12,000; 7; 16,000, 11	3
5.	$\frac{7}{8}$	7.

 8,000 pounds
 53 100

Home Link 6-7

Sample ans	swer:
5)360	
- 350	70
10	
- 10	2
0	72

Sample estimate: $350 \div 5 = 70$; $360 \div 5 = p$; 72 prizes; 0 prizes

- **3.** Sample estimate: 160 / 8 = 20; 23
- **5.** 0.08, 0.34, 0.98, 9.8 **7.** >



B. Reported it as a fraction; Sample answer: You can cut the remaining strawberries into halves.

3. $\frac{3}{8}, \frac{3}{6}, \frac{3}{5}, \frac{3}{3}$ **5.** $\frac{1}{2}, \frac{2}{3}, \frac{6}{8}, \frac{99}{100}$

Home Link 6-9

- **1.** Right; 90° **3.** Acute; 45°
- **5.** 692 **7.** 680

Home Link 6-10



7. 65,811 **9.** 64,091

Home Link 6-11

Р

- **1.** Sample answer: $30^{\circ} + y = 90^{\circ}$; 60°
- **3.** Sample answer: $90^{\circ} z = 75^{\circ}$; 15°
- **5.** Sample answer: $180^{\circ} 60^{\circ} = a$; 120°

7.
$$\frac{7}{12}, \frac{7}{10}, \frac{7}{9}, \frac{7}{8}$$

Home Link 6-12

1. a. Strawberries;
$$\frac{3}{12} + \frac{1}{12} = b$$
; $\frac{4}{12}$ pound
b. $\frac{3}{12} - \frac{1}{12} = p$; $\frac{2}{12}$ pound
3. $4\frac{2}{8} + 1\frac{3}{8} = p$; $5\frac{5}{8}$ pounds

5. 2,400

Home Link 6-13

1. 45 children; Sample answer:

XXX	XXX	XXX	XXX	XXX
XXX	XXX	X X X	X X X	XXX
XXX	XXX	XXX	XXX	XXX

5 groups of 9;

9 + 9 + 9 + 9 + 9 = 45; 5 * 9 = 45

3. $2\frac{2}{5}$ veggie pizzas; Sample answer:



4 groups of $\frac{3}{5}$; $\frac{3}{5} + \frac{3}{5} + \frac{3}{5} + \frac{3}{5} = \frac{12}{5}$; $4 * \frac{3}{5} = \frac{12}{5}$

