## Sharing Equally

Use drawings to help you solve the problems. Solve each problem in more than one way. Show your work.
(1) Four friends shared 5 pizzas equally. How much pizza did each friend get?
$\qquad$ pizzas

One way:

Another way:
(2) Five kittens are sharing 6 cups of milk equally. How much milk does each kitten get?
$\qquad$
One way:

Another way:

## Practice

(3) Name the next 4 multiples of 7.7 , $\qquad$ , $\qquad$ , $\qquad$ $\underline{L}$
(4) List all the factors of 18 . $\qquad$
(5) List all the factors of 18 that are prime. $\qquad$
(6) List all the factor pairs of 40 .
$\qquad$ and $\qquad$ ; $\qquad$ and $\qquad$ ;
$\qquad$ and $\qquad$ ; $\qquad$ and $\qquad$

## Fraction Circles

## Home Link 3-2

(1) Divide into 4 equal parts. Shade $\frac{1}{4}$.

(2) Divide into 8 equal parts. Shade $\frac{2}{8}$.

(3) Divide into 12 equal parts. Shade $\frac{3}{12}$.
(4) Create your own. Divide into equal parts and shade a portion. Record the amount you shaded.

(5) What patterns do you notice in Problems 1 through 3?
$\qquad$
$\qquad$

Practice
(6) List the next 4 multiples of 5. 20, $\qquad$ $\longrightarrow$, $\longrightarrow, \square$
(7) List all the factors of 48 .
(8) List the factors of 48 that are composite. $\qquad$

## Finding Equivalent Fractions

Use the number lines to help you answer the following questions.
(1) Fill in the blank with $=$ or $\neq$.
a. $\frac{2}{3}-\frac{1}{3}$
b. $\frac{2}{6} \quad \frac{1}{3}$
c. $\frac{2}{6} \quad \frac{2}{5}$
d. $\frac{1}{5}-\frac{2}{10}$
e. $\frac{2}{12} \quad \frac{1}{6}$
(2) Fill in the missing numbers.
a. $\frac{1}{5}=\frac{\square}{10}$
b. $\frac{4}{12}=\frac{\square}{3}$
c. $\frac{5}{10}=\frac{\square}{2}$
d. $\frac{3}{6}=\frac{\square}{12}$
e. $\frac{4}{6}=\frac{\square}{3}$
(3) Circle the number sentences that are NOT true.
a. $\frac{3}{12}=\frac{1}{4}$
b. $\quad \frac{1}{2}=\frac{5}{10}$
c. $\frac{2}{6}=\frac{2}{5}$
d. $\frac{7}{10}=\frac{4}{6}$
e. $\frac{9}{10}=\frac{11}{12}$

## Practice

Solve using U.S. traditional addition or subtraction.
(4) $\qquad$ $=989+657$
(5) $3,314+4,719=$ $\qquad$
(6) $5,887-3,598=$ $\qquad$ (7) $\qquad$

## Finding Equivalent Fractions

Family Note Today students learned about an Equivalent Fractions Rule, which can be used to rename any fraction as an equivalent fraction. The rule for multiplication states that if the numerator and denominator are multiplied by the same nonzero number, the result is a fraction that is equivalent to the original fraction.
For example, the fraction $\frac{1}{2}$ can be renamed as an infinite number of equivalent fractions. When you multiply the numerator 1 by 5 , the result is 5 . When you multiply the denominator 2 by 5 , the result is 10 .

$$
\frac{1 \times 5}{2 \times 5}=\frac{5}{10}
$$

This results in the number sentence $\frac{1}{2}=\frac{5}{10}$. If you multiplied both the numerator and denominator in $\frac{1}{2}$ by 3 , the result would be $\frac{3}{6}$, which is also equal to $\frac{1}{2}$.

Fill in the boxes to complete the equivalent fractions.
Example: $\frac{1}{2}=\frac{3}{\boxed{6}}$
(1) $\frac{1}{2}=\frac{6}{\square}$
(2) $\frac{1}{4}=\frac{3}{\square}$

(4) $\frac{2}{3}=\frac{8}{\square}$
(5) $\frac{1}{5}=\frac{\square}{10}$
(6) $\frac{2}{5}=\frac{\square}{10}$
(7) $\frac{3}{4}=\frac{9}{\square}$
(8) $\frac{5}{6}=\frac{10}{\square}$
(9) $\frac{2}{\square}=\frac{6}{9}$
(10) $\frac{4}{\square}=\frac{8}{12}$
(11) Name 3 equivalent fractions for $\frac{1}{2}$. $\qquad$

## Practice

(12) List all the factors of 56 . $\qquad$
(13) Write the factor pairs for 30.
$\qquad$ and $\qquad$ , $\qquad$ and $\qquad$ , $\qquad$ and $\qquad$
$\qquad$ and $\qquad$
(14) Is 30 prime or composite? $\qquad$

## Sharing Veggie Pizza

## Home Link 3-5

NAME
(1) Karen and her 3 friends want to share 3 small veggie pizzas equally.

Karen tried to figure out how much pizza each of the 4 children would get. She drew this picture and wrote two answers.

a. Which of Karen's answers is correct? $\qquad$
b. Draw on Karen's diagram to make it clear how the pizza should be distributed among the 4 children.
(2) Erin and her 7 friends want to share 6 small veggie pizzas equally.

How much pizza will each of the 8 children get? $\qquad$
(3) Who will get more pizza, Karen or Erin? $\qquad$
Explain or show how you know.

## Practice

(4) List all the factors of 50 .
(5) Is 50 prime or composite? $\qquad$
(6) Write the factor pairs for 75 .
$\qquad$ and $\qquad$
$\qquad$ and $\qquad$
$\qquad$ and $\qquad$

# Solving Fraction Comparison Number Stories 

## Home Link 3-6

Solve the problems below.
(1) Tenisha and Christa were each reading the same book. Tenisha said she was
$\frac{3}{4}$ of the way done with it, and Christa said she was $\frac{6}{8}$ of the way finished.
Who has read more, or have they read the same amount? $\qquad$

How do you know? $\qquad$
(2) Heather and Jerry each bought an ice cream bar. Although the bars were the same size, they were different flavors. Heather ate $\frac{5}{8}$ of her ice cream bar, and Jerry ate $\frac{5}{10}$ of his.

Who ate more, or did they eat the same amount? $\qquad$
Write a number sentence to show this. $\qquad$
(3) Howard's baseball team won $\frac{7}{10}$ of its games. Jermaine's team won $\frac{2}{5}$ of its games. They both played the same number of games.

Whose team won more games, or did they win the same amount? $\qquad$

## Practice

Write T for true or F for false.
(5) $1,286+2,286=3,752$
(6) $9,907-9,709=200$ $\qquad$
(7) $2,641+4,359=2,359+4,641$
(8) $2,345-198=2,969-822$ $\qquad$

## Comparing and Ordering Fractions

Write the fractions from smallest to largest, and then justify your conclusions by placing the numbers in the correct places on the number lines.
(1) $\frac{5}{6}, \frac{2}{6}, \frac{4}{6}$

$$
\overline{\text { smallest }} \quad \text { largest }
$$


(2) $\frac{3}{5}, \frac{9}{10}, \frac{1}{4}, \frac{5}{12}$
smallest largest

(3) $\frac{7}{12}, \frac{1}{2}, \frac{2}{3}, \frac{4}{10}, \frac{1}{6}$


## Practice

(4) $\qquad$ $=5,494+3,769$
(5) $5,853+4,268=$ $\qquad$
(6) $\qquad$ $=8,210-6,654$
(7) $7,235-5,906=$ $\qquad$

## Names for Fractions and Decimals

(1) Fill in the blanks in the table below.

| Number in Words | Fraction | Decimal |
| :---: | :---: | :---: |
| one-tenth |  |  |
| four-tenths | $\frac{8}{10}$ | 0.9 |
|  | $\frac{2}{10}$ |  |
|  |  |  |
| seven-tenths |  |  |

(2) Name two ways you might see decimals used outside of school.
$\qquad$

(3) What decimal is represented by the tick mark labeled $M$ ? $\qquad$
(4) What fraction is represented by the tick mark labeled $M$ ? $\qquad$
(5) What decimal is represented by the tick mark labeled $P$ ? $\qquad$
(6) What fraction is represented by the tick mark labeled $P$ ? $\qquad$

## Practice

(7) List all the factors of 100 .
(8) List the factors of 100 that are prime. $\qquad$
(9) Write the factor pairs for 42.
$\qquad$ and $\qquad$
$\qquad$ and $\qquad$
$\qquad$ and $\qquad$ and $\qquad$

## Representing Fractions and Decimals

If the grid is the whole, then what part of each grid is shaded?
Write a fraction and a decimal below each grid.
(1)

fraction: $\qquad$
decimal: $\qquad$
(4) Color 0.8 of the grid.

(2)

fraction: $\qquad$
decimal: $\qquad$
(5) Color 0.04 of the grid.

(3)

fraction: $\qquad$
decimal: $\qquad$
(6) Color 0.53 of the grid.


## Practice

(7) The numbers 81,27 , and 45 are all multiples of 1 , $\qquad$ and $\qquad$ .
(8) List the first ten multiples of 6 .
$\qquad$ , $\qquad$ , $\qquad$ , $\qquad$ , $\qquad$ , $\qquad$ , $\qquad$
$\qquad$ ,
$\qquad$ , $\qquad$ -

## Tenths and Hundredths

Family Note Your child continues to work with decimals. Encourage him or her to think about ways to write money amounts. This is called dollars-and-cents notation. For example, \$0.07 (7 cents), $\$ 0.09$ ( 9 cents), and so on.

Write the decimal numbers that represent the shaded part in each diagram.
(1)

hundredths
$\qquad$
$\qquad$ tenths $\qquad$ hundredths
(2)

hundredths

$\qquad$
 hundredths
$\qquad$ tenths hundredths

Write the words as decimal numbers.
(4) twenty-three hundredths
(5) eight and four-tenths
$\qquad$
(6) thirty and twenty-hundredths
(7) five-hundredths
$\qquad$
Continue each pattern.
(8) $0.1,0.2,0.3$, $\qquad$ , $\qquad$ , $\qquad$ , $\qquad$ , $\qquad$ , $\qquad$
(9) $0.01,0.02,0.03$, $\qquad$ , $\qquad$
$\qquad$ , $\qquad$ , $\qquad$

## Practice

(10) Round 7,604 to the nearest thousand.
(11) Round 46,099 to the nearest thousand. $\qquad$
(12) Round 8,500,976 three ways: nearest thousand, hundred-thousand, and million.

## Practice with Decimals

Fill in the missing numbers.
(1)

(2)


Follow these directions on the ruler below.
(3) Make a dot at 7 cm and label it with the letter $A$.
(4) Make a dot at 90 mm and label it with the letter $B$.
(5) Make a dot at 0.13 m and label it with the letter $C$.
(6) Make a dot at 0.06 m and label it with the letter $D$.

(7) Write $<$, $>$, or $=$
a. 1.2 $\qquad$ 0.12
b. 0.3 $\qquad$ 0.38
c. 0.80 $\qquad$ 0.08
(8) Complete.
$1 \mathrm{~cm}=10 \mathrm{~mm} \quad 1 \mathrm{~m}=100 \mathrm{~cm}$

| cm | m |
| :---: | :---: |
| 100 | 1 |
|  | 5 |
| 1,000 |  |
| 6,000 |  |


| cm | m |
| :---: | :---: |
| 1 | 0.01 |
|  | 0.03 |
|  | 0.06 |
| 40 |  |

## Practice

(9) $6,366+7,565=$ $\qquad$
(11) $9,325-7,756=$ $\qquad$
(10) $3,238+29,784=$ $\qquad$
(12) $14,805-2,927=$ $\qquad$

## Measuring Centimeters and Millimeters

(1) Find 6 objects in your home to measure. Use the ruler from the bottom of the page to measure them, first in centimeters and then in millimeters.
Record your objects and their measurements.
Example: crayon $3.5 \mathrm{~cm} \quad 35 \mathrm{~mm}$

Object
$\qquad$
$\qquad$ cm $\qquad$ mm $\qquad$ cm $\qquad$ mm
$\qquad$
$\qquad$ mm $\qquad$
$\qquad$ cm $\qquad$ mm
$\qquad$ $\ldots \mathrm{cm}$ $\qquad$ mm $\qquad$ mm

Fill in the tables.
(2)

| $\mathbf{c m}$ | mm |
| :---: | :---: |
| 1 |  |
| 15 |  |
| 3.7 |  |
| 49.6 |  |
| 0.8 |  |

(3)

| $\mathbf{c m}$ | $\mathbf{m}$ |
| :---: | :---: |
|  | 1 |
| 180 |  |
|  | 23.6 |
|  | 5.72 |
|  | 0.65 |

## Practice

(4) List the factors for 63 . $\qquad$
(5) Write the factor pairs for 60 .
$\qquad$ and $\qquad$
$\qquad$ and $\qquad$
$\qquad$ and $\qquad$


## Comparing Decimals

Family Note Ask your child to read the decimal numerals aloud. Encourage your child to use the following method:

1. Read the whole-number part.
2. Say and for the decimal point.
3. Read the digits after the decimal point as though they form their own number.
4. Say tenths or hundredths, depending on the placement of the right-hand digit.

Encourage your child to exaggerate the -ths sound. For example, 2.37 is read as "two and thirty-seven hundredths."

Write $>$, $<$, or $=$.
(1) $2.35 — 2.57$
(2) 1.08 $\qquad$ 1.8
(3) $0.64 \_0.46$
(4) $0.90-0.9$
(5) $42.1 \_42.09$
(6) $7.09 \_7.54$
(7) 0.4 $\qquad$ 0.40
(8) $0.26-0.21$

| $>$ |
| :---: |
| means is |
|  |
| greater than |
| $<$ |
| means is |
| less than |

Example: The 4 in 0.47 stands for 4 tenths or 0.4
(9) The 9 in 4.59 stands for 9 $\qquad$ or $\qquad$
(10) The 3 in 3.62 stands for 3 $\qquad$ or $\qquad$

Continue each number pattern.
(11)
$6.56,6.57,6.58$ $\qquad$ $\longrightarrow$ $\qquad$
(12) $0.73,0.83,0.93$ $\qquad$ $\longrightarrow$,

Write the number that is 0.1 more.
Write the number that is 0.1 less.
(13)
4.3 $\qquad$ (14) 4.07 $\qquad$ (15) 8.2 $\qquad$ (16) 5.63 $\qquad$

## Practice

(17)
$43,589+12,641=$ $\qquad$ (18) $63,274+97,047=$ $\qquad$
(19) $41,805-26,426=$ $\qquad$ (20) $82,004-11,534=$ $\qquad$

## Multidigit Multiplication

In Unit 4 your child will multiply multidigit numbers using extended multiplication facts, partial-products multiplication, and lattice multiplication. Throughout the unit, students use these methods to solve real-life multistep multiplication number stories.

The unit begins with extended multiplication facts. Knowing that $5 * 3=15$ helps students see that $50 * 3=150 ; 500 * 3=1,500$; and so on. Working with extended facts gives students the ability to multiply larger numbers with ease.

Students also learn the partial-products multiplication method in which the value of each digit in one factor is multiplied by the value of each digit in the other factor. They partition a rectangle into smaller parts to help them understand how the method works. The example below shows how to use partial-products multiplication to find $456 * 4$.

| Partitioned Rectangles |  |  |  | Partial-Products Multiplication |
| :---: | :---: | :---: | :---: | :---: |
| $400+50+6$ |  |  |  | 456 |
| 4 | 1600 | 200 | 24 | $\begin{array}{r} 4 * 400 \rightarrow 1600 \\ 4 * 50 \rightarrow \quad 200 \end{array}$ |
| 456 |  |  |  | $4 * 6 \rightarrow+\quad 24$ |

To practice multiplying 2-digit numbers using partial-products multiplication, students play a game called Multiplication Wrestling.

Finally, students are introduced to the lattice multiplication method: The lattice method breaks down the numbers into place values, allowing students to work with smaller numbers while solving a multidigit multiplication problem. It is an efficient method, often taking no more time than other methods.


In this unit, students apply their understanding of multidigit multiplication to solve conversion problems involving liters and milliliters and grams and kilograms. They also find the area of rectilinear figures.
Please keep this Family Letter for reference as your child works through Unit 4.

## Vocabulary

Important terms in Unit 4:
adjacent Next to, or adjoining.
decompose To "break apart" numbers into friendlier numbers.

Distributive Property A rule saying that if $a, b$, and $c$ are real numbers, then: $a *(b+c)=(a * b)+(a * c)$.
extended multiplication facts Multiplication facts involving multiples of 10,100 , and so on. For example, $400 * 6=2,400$ and $20 * 30=600$ are extended multiplication facts.
gram (g) A unit of mass in the metric system. There are about 454 grams in 1 pound.
kilogram (kg) 1,000 grams.
lattice multiplication A way to multiply multidigit numbers. For example:

liter (L) A unit of capacity in the metric system. It is equivalent to a little more than one quart.
mass The measure of the amount of matter in an object.
milliliter (mL) $\frac{1}{1000}$ of a liter.
partial-products multiplication A way to multiply in which the value of each digit in one factor is multiplied by the value of each digit in the other factor. The final product is the sum of the partial products. For example:

$$
\begin{aligned}
& 73 \\
& 40 * 70 \rightarrow \begin{array}{c}
* 46 \\
\hline 2800
\end{array} \\
& 40 * 3 \rightarrow 120 \\
& 6 * 70 \rightarrow 420 \\
& 6 * 3 \rightarrow \frac{+18}{3,358}
\end{aligned}
$$

partition (in partial-products multiplication) A technique that uses the Distributive Property to break up a large rectangle into smaller rectangles in order to find the area more easily in parts.
rectilinear figure A single figure formed by combining multiple adjacent rectangles.


## Do-Anytime Activities

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

1. Practice extended multiplication facts such as $50 * 40=$ $\qquad$ _.
2. Collect three to five cans and bottles from the kitchen. Put them on the table and ask your child to order them, without looking at the labels, based on the amount of liquid each container can hold and/or their mass. Ask your child to estimate both. Check the results together by looking at the labels.
3. Pose a multiplication problem and ask your child to solve it using a method of his or her choice. Have your child explain to you or someone else at home what he or she did to complete the problem.

## Building Skills through Games

In this unit your child will play the following game to develop his or her understanding of multiplication. For detailed instructions, see the Student Reference Book.

Multiplication Wrestling See Student Reference Book, page 267.
The game provides practice with multiplication of 2-digit numbers by 2-digit numbers.

## As You Help Your Child with Homework

As your child brings assignments home, you may want to go over instructions together, clarifying them as necessary. The answers listed below will guide you through the Home Links for this unit.

## Home Link 4-1

1. $560 ; 3,200 ; 630 ; 3,600$
2. $450 ; 200 ; 63,000 ; 28,000$
3. $9 ; 240 ; 700 ; 6,300$
4. Answers vary.
5. 1,190
6. 13,303

## Home Link 4-2

Number models are sample answers.

1. $(20 * 30)-(10 * 30)=300$;

330; Answers vary.
3. $30 * 50=1,500 ; 30 * 40=1,200 ; 1,500-1,200$
$=300 ; 496$; Answers vary.
5. $1,410,000$

## Home Link 4-3

1. 140; Sample answer:

2. 441 ; Sample answer:

3. 2,956
4. 2,559

## Home Link 4-4

1. 8,$000 ; 15,000 ; 20,000 ; 25,000$
2. $122,000 \mathrm{~mL}$
3. 14,445
4. 62,341

## Home Link 4-5

1. Sample answer: Four calculators fit in a layer. The box is 5 cm tall, so there are 5 layers of calculators. The box fits 4 calculators $* 5$, which is 20 calculators in all.
2. 108
3. 129

## Home Link 4-6

1. 48
$\begin{array}{r}+\quad 3 \\ \hline 120\end{array}$
$\begin{array}{r}+24 \\ \hline 144\end{array}$
2. $9[100,000 \mathrm{~s}]+5[1,000 \mathrm{~s}]+6[100 \mathrm{~s}]+3[1 \mathrm{~s}]$
3. $2[1,000,000 s]+5[100,000 s]+9[10,000 s]+$ 9 [1,000s] +2 [1s]

## Home Link 4-7

1. $25 ; 50,000 ; 75,000 ; 100$
2. 237,$000 ; 98,000 ; 485 ; 920,000$
3. 63,000 grams
4. 396
5. 294

## Home Link 4-8

1. $\$ 478$
2. $\$ 55$
3. $1,3,7,21$
4. $1,2,3,4,6,9,12,18,36$

## Home Link 4-9

1. 1,748

$$
\begin{array}{r}
46 \\
* \quad 38 \\
\hline 1200 \\
180 \\
+\quad 320 \\
+\quad 48 \\
\hline 1748
\end{array}
$$

3. $65 * 22=t ; 1,430$ trees
4. 185
5. 1,992

## Home Link 4-10

1. $42 ; 420 ; 420 ; 4,200 ; 4,200 ; 42,000$
2. $32 ; 320 ; 320 ; 3,200 ; 3,200 ; 32,000$
3. $6 ; 6 ; 60 ; 9 ; 900 ; 9,000$
4. 2,139
5. 32,632

## Home Link 4-11

1. $18 * 27=486 ; 486$ square units
2. Sample answer: $100 * 30=3,000$; $20 * 20=400 ; 3,000+400=3,400 ;$ 3,400 square inches
3. $1,2,31,62$
4. 616
5. $1,5,11,55$
6. 356
