Reading and Writing Decimals

Home Link 4-1

NAME DATE TIME

SRB 117-119

Use the place-value chart below to complete Problems 1–8.

Ones		Tenths	Hundredths	Thousandths
1s		0.1s	0.01s	0.001s
1s	.	$\frac{1}{10}$s	$\frac{1}{100}$s	$\frac{1}{1{,}000}$s

Write each decimal in words.

1. 2.598 _____
2. 0.21 _____
3. 1.006 _____

Write each decimal using numerals. Then write the value of 9 in each decimal.

4. **a.** three and nine tenths _____ **b.** 9 is worth _____
5. **a.** thirty-nine hundredths _____ **b.** 9 is worth _____
6. **a.** six hundred thirty-nine thousandths _____
   b. 9 is worth _____

Solve the place-value puzzles.

7. Use the clues to write the mystery number.

   Write 3 in the thousandths place.

   Write 8 in the tenths place.

   Write 5 in the hundredths place.

   Write 0 in the ones place.

   _____ . _____ _____ _____

8. Make the following changes to the number 2.614:

   Make the 1 worth $\frac{1}{10}$ as much.

   Make the 4 worth 10 times as much.

   Make the 2 worth $\frac{1}{10}$ as much.

   Make the 6 worth 10 times as much.

   _____ . _____ _____ _____

Practice

Make an estimate and solve using U.S. traditional multiplication.

9. _____ (estimate)

$$\begin{array}{r} 8,429 \\ \times \quad 8 \\ \hline \end{array}$$

10. _____ (estimate)

$$\begin{array}{r} 531 \\ \times \quad 72 \\ \hline \end{array}$$

Representing Decimals

Home Link 4-2

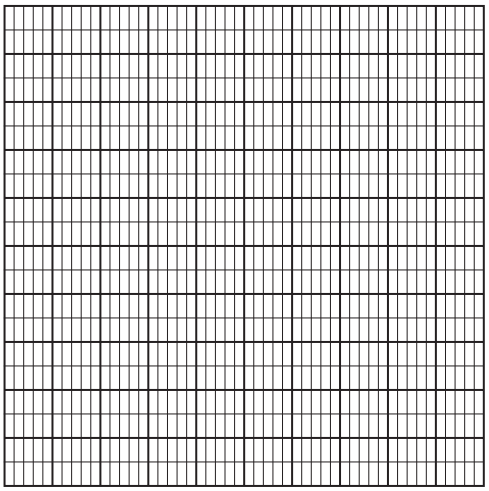
NAME DATE TIME

SRB 116-117, 120

For Problems 1 and 2, use words, fractions, equivalent decimals, or other representations to write at least three names for each decimal in the name-collection box. Then shade the grid to show the decimal.

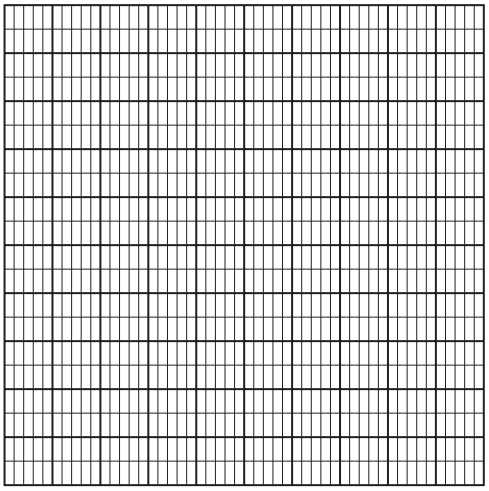
1

0.550



2

0.09



Practice

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

3 Estimate: _____

$15\overline{)322}$

322 ÷ 15 → _____

4 Estimate: _____

$21\overline{)4{,}319}$

4,319 ÷ 21 → _____

Representing Decimals in Expanded Form

Home Link 4-3

NAME DATE TIME

Numbers can be written in **standard notation** or **expanded form.** When numbers are written in expanded form, the value of each digit is clearly shown. The number 3.924 is written in standard notation. The examples below show 3.924 using different versions of expanded form.

SRB 118

- $3 + 0.9 + 0.02 + 0.004$
- 3 ones + 9 tenths + 2 hundredths + 4 thousandths
- $(3 * 1) + (9 * 0.1) + (2 * 0.01) + (4 * 0.001)$
- $(3 * 1) + \left(9 * \frac{1}{10}\right) + \left(2 * \frac{1}{100}\right) + \left(4 * \frac{1}{1{,}000}\right)$

In Problems 1–4, represent each decimal using one version of expanded form.

1. 0.571 _____
2. 4.203 _____
3. 0.068 _____
4. 8.415 _____

In Problems 5–8 an expanded form of a decimal is given. Write the decimal in standard notation.

5. 9 ones + 5 tenths + 7 hundredths + 0 thousandths _____
6. $3 + 0.6 + 0.02 + 0.004$ _____
7. $\left(5 * \frac{1}{10}\right) + \left(8 * \frac{1}{100}\right) + \left(9 * \frac{1}{1{,}000}\right)$ _____
8. $(2 * 1) + (3 * 0.1) + (7 * 0.01) + (1 * 0.001)$ _____

Practice

9. There 30 colored circles on a rug. $\frac{1}{5}$ of the circles are red. How many red circles are on the rug?

   Answer: _____ red circles

10. Jerome did a survey to find out his classmates' favorite sports. He found that $\frac{1}{3}$ of the 24 students in his class chose soccer as their favorite sport. How many students chose soccer?

    Answer: _____ students

Comparing and Ordering Decimals

Home Link 4-4

NAME DATE TIME

Darryl and Charity are playing *Decimal Top-It*. Their record sheet is shown below.

Ones	.	Tenths	Hundredths	Thousandths
	.			

SRB 122-123

① Compare their decimals for each round and write >, <, or = in the middle column. Use the place-value chart above to help you.

Round	Player 1 - *Darryl*	>, <, =	Player 2 - *Charity*
1	0.378		0.860
2	0.9		0.59
3	0.804		0.92
4	0.547		0.6
5	0.72		0.098

② Who won the most rounds? _____

③ **a.** Put Darryl's decimals in order from least to greatest.

_____ _____ _____ _____ _____

b. Put Charity's decimals in order from least to greatest.

_____ _____ _____ _____ _____

④ **a.** What was the largest decimal of the whole game? _____

b. How do you know?

_____

_____

_____

Practice

Use the fractions below to complete Problems 5–7. Use each fraction only once.

$\frac{2}{3}$ $\frac{1}{4}$ $\frac{7}{8}$ $\frac{3}{4}$

⑤ $\frac{3}{8} + \_\_\_ < 1$ ⑥ $\_\_\_ - \frac{1}{8} < 1$ ⑦ $\_\_\_ + \_\_\_ > 1$

Rounding Decimals

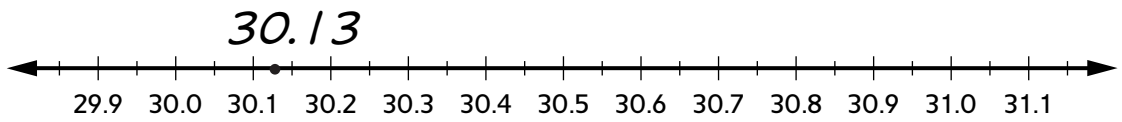
Home Link 4-5

NAME DATE TIME

SRB 124-127

(1) Mark each number on the number line. The first one is done for you.

30.13 30.72 31.05 29.94 30.38



(2) Round the area of each country to the nearest tenth of a square mile.

Ten Smallest Countries		Area in Square Miles	Area Rounded to the Nearest Tenth of a Square Mile
1	Vatican City	0.17 mi^2	mi^2
2	Monaco	0.75 mi^2	mi^2
3	Nauru	8.11 mi^2	mi^2
4	Tuvalu	10.04 mi^2	mi^2
5	San Marino	23.63 mi^2	mi^2
6	Liechtenstein	61.78 mi^2	mi^2
7	St. Kitts and Nevis	100.77 mi^2	mi^2
8	Maldives	115.83 mi^2	mi^2
9	Malta	122.01 mi^2	mi^2
10	Grenada	132.82 mi^2	mi^2

Practice

Write the following expressions in standard notation.

(3) $8 * 10^3 =$ _____ (4) $23 * 10^5 =$ _____

Write the following numbers using exponential notation.

(5) $400 = 4 *$ _____ (6) $15{,}000 = 15 *$ _____

Plotting Points to Create an Outline Map

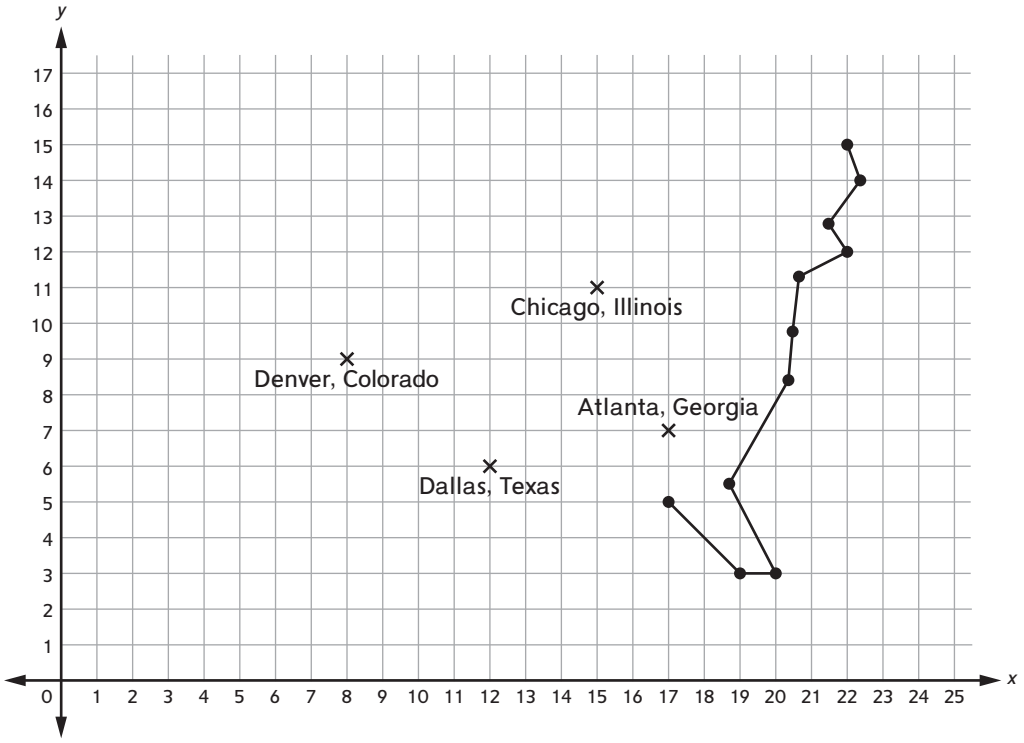
Home Link 4-6

NAME DATE TIME

SRB 275

① **a.** Plot the following points on the grid: (21, 14) (17, 11) (17, 13) (15, 14) (2, 16) (1, 11) (2, 8) (3, 6) (7, 5) (11, 3) (13, 4)

b. Connect all the points in the order listed. Then connect (13, 4) to (17, 5) and (21, 14) to (22, 15). You should see an outline map of the United States.



② Write the coordinates of each city.

a. Chicago, Illinois _____ **b.** Dallas, Texas _____

c. Atlanta, Georgia _____ **d.** Denver, Colorado _____

③ Plot each city on the grid and write the city name.

a. Billings, Montana (7, 13) **b.** Salt Lake City, Utah (5, 10)

Practice

Use the clues to write the mystery number. Then read each decimal to someone at home.

④ Write 0 in the tenths place.
Write 7 in the ones place.
Write 3 in the thousandths place.
Write 5 in the hundredths place.

___ . ___ ___ ___

⑤ Write 5 in the hundredths place.
Write 1 in the tenths place.
Write 4 in the ones place.
Write 9 in the thousandths place.

___ . ___ ___ ___

Treasure Steps

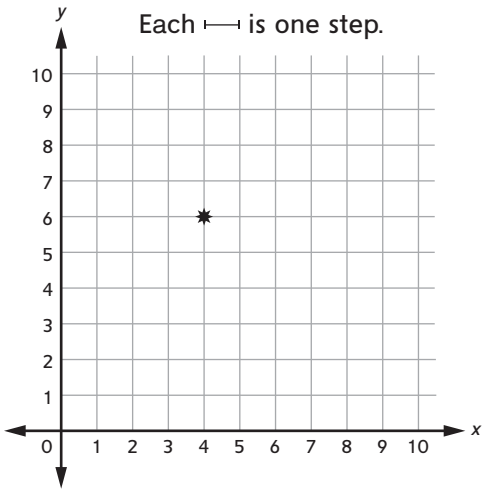
Home Link 4-7

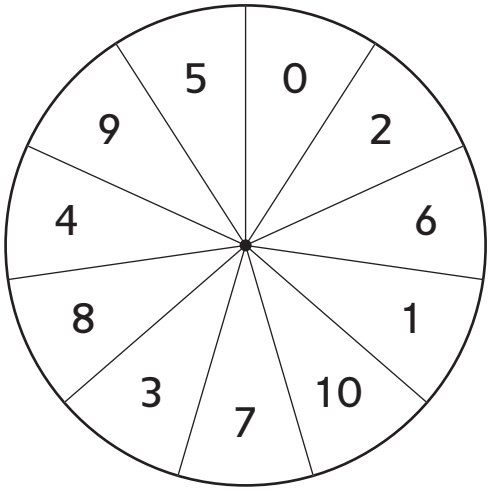
NAME DATE TIME

Play a coordinate grid game, *Treasure Steps*, with someone at home or by yourself.

SRB 275

The treasure is marked with a ∗. Make a spinner with a paper clip and a pencil.





To play with a partner:

- Take turns. When it is your turn, spin. This is the first number in your ordered pair. Spin again. This is the second number in your ordered pair. Plot the point on the gameboard.
- Count the number of "steps" from your point to the treasure. Stay on the grid lines as you count. Record your ordered pair and the number of steps.
- After 5 rounds, find your total number of steps. The player with the smaller total wins.

To play by yourself:

The goal is to get as close to 30 steps as you can. Spin, plot your point, and count your steps as you would if you were playing with a partner. Record the ordered pairs and steps. After 5 rounds, find the total number of steps. How close did you get to 30?

Practice

(1) Put an **X** by the expressions that show 3.245 in expanded form.

- ☐ 3 ones + 2 tenths + 4 hundredths + 5 thousandths
- ☐ $(3 * 1) + (2 * 0.01) + (4 * 0.001) + (5 * 0.0001)$
- ☐ $(3 * 1) + \left(2 * \frac{1}{10}\right) + \left(4 * \frac{1}{100}\right) + \left(5 * \frac{1}{1{,}000}\right)$

(2) Write 0.605 in expanded form. Use any version of expanded form you wish.

Plotting Figures on a Coordinate Grid

Home Link 4-8

NAME DATE TIME

SRB 275

1. Plot any three points and connect them to make a triangle on the grid below. Label the points *A*, *B*, and *C*. List the coordinates of your points.

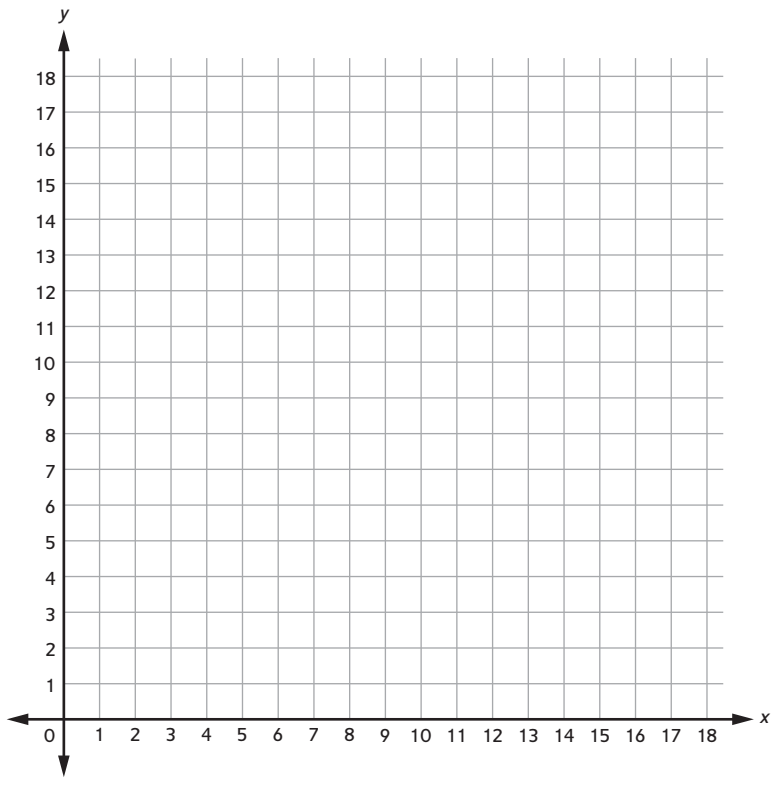
   A: (_____, _____) *B:* (_____, _____)

   C: (_____, _____)

2. Plot four points and connect them to make a quadrilateral on the grid below. The quadrilateral may overlap the triangle. Label the points as *M*, *N*, *O*, and *P*. List the coordinates of your points.

   M: (_____, _____) *N:* (_____, _____)

   O: (_____, _____) *P:* (_____, _____)



Practice

Write <, >, or = to make true number sentences.

3. 0.3 ____ 0.25
4. 0.76 ____ 0.8
5. 0.1 ____ 0.10
6. 0.785 ____ 0.79
7. 4.03 ____ 4.030
8. 1.512 ____ 1.499

Solving Problems on a Coordinate Grid

Home Link 4-9

NAME DATE TIME

Clay reads the same amount of a book each day. The table below shows how many chapters of the book he has read at the end of each day.

Write the data from the table as ordered pairs. Plot the points on the grid and connect them in a line. Use the graph to answer the questions.

End of Day	Chapters Completed
1	3
2	6
3	9
4	12
5	15

Ordered pairs:

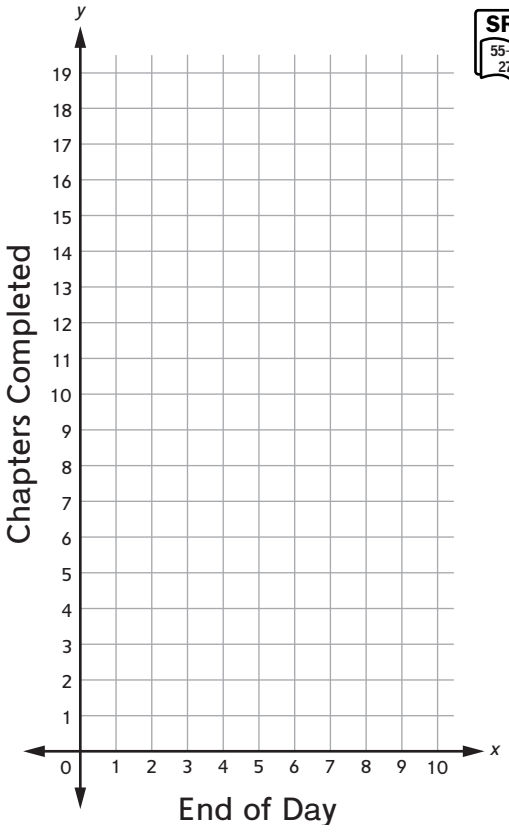
(_____, _____)

(_____, _____)

(_____, _____)

(_____, _____)

(_____, _____)



SRB 55-56, 275

1. Between which two days did Clay finish reading Chapter 5 in the book?

   Between days _____ and _____

2. About how many chapters had Clay read half-way through the fourth day (Day $3\frac{1}{2}$)?

   _____

3. If the book has 17 chapters, on what day would Clay complete the book?

   _____

4. Explain how you found your answer to Problem 3.

   _____

   _____

Practice

Round the following numbers to the nearest hundredth.

5. 0.546 _____

6. 3.971 _____

7. 84.099 _____

8. 0.008 _____

Using a Coordinate Grid

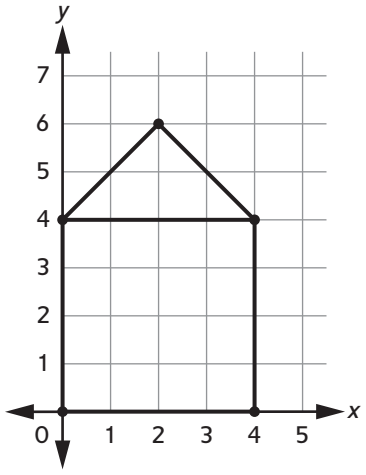
Home Link 4-10

NAME DATE TIME

Eva made a drawing of her house on a coordinate grid. She said that the real house looks like it is about twice as wide as it is high. Her brother said she should change her picture to look more like their real house.

SRB 55-56, 275

Eva's Original Picture



(1) Write a rule that Eva can use to make the drawing of the house look more like her real house.

(2) Use your rule to write the new coordinates.

Original Drawing of the House	New Drawing of the House
(0, 4)	
(0, 0)	
(4, 0)	
(4, 4)	
(0, 4)	
(2, 6)	
(4, 4)	

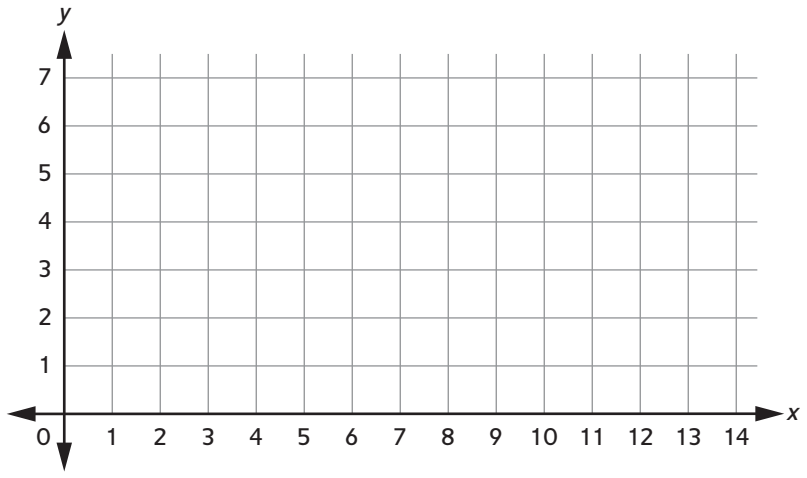
Using a Coordinate Grid
(continued)

Home Link 4-10

NAME DATE TIME

③ Plot the new coordinates for the house on the coordinate grid below. Connect the points in the same order that you plot them.

SRB 55-56, 275



④ Describe how the new drawing of the house is different from the original drawing.

⑤ What can Eva say to her brother to explain that her new drawing is twice as wide as it is high?

Practice

Rewrite each mixed number as a different fraction or mixed number with the same denominator.

⑥ $3\frac{1}{2} =$ _____

⑦ $3\frac{3}{4} =$ _____

⑧ $7\frac{4}{3} =$ _____

⑨ $6\frac{2}{3} =$ _____

Decimal Addition and Subtraction with Grids

Home Link 4-11

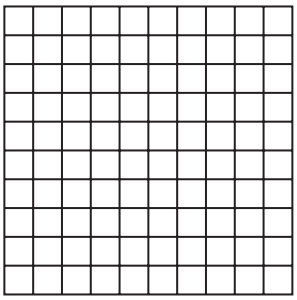
NAME DATE TIME

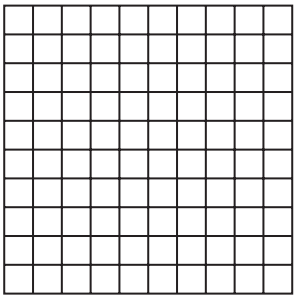
(1) **a.** Shade this grid to show 0.61.

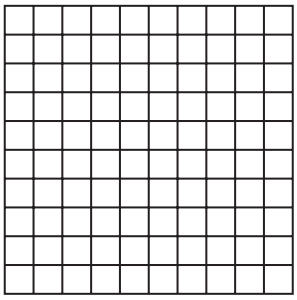
b. Shade this grid to show 0.34.

c. Shade this grid to show 0.61 + 0.34.

SRB 129







d. Write an addition number sentence to represent what you did in Parts a–c.

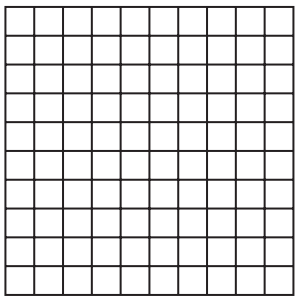
_____

(2) **a.** Shade the grid at the right to show 0.4.

b. On top of the part that is already shaded, shade 0.15 darker, or cross out 0.15.

c. Write a subtraction number sentence to show what you did.

_____



Practice

Make an estimate. Then solve using U.S. traditional multiplication.

(3) _____ (estimate)

$$\begin{array}{r} 27 \\ \times\ 31 \\ \hline \end{array}$$

(4) _____ (estimate)

$$\begin{array}{r} 308 \\ \times\ 56 \\ \hline \end{array}$$

(5) _____ (estimate)

$$\begin{array}{r} 412 \\ \times\ 176 \\ \hline \end{array}$$

Adding Decimals

Home Link 4-12

NAME DATE TIME

For Problems 1–3, make an estimate. Write a number sentence to show how you estimated. Then solve the problem using partial-sums addition, column addition, or U.S. traditional addition. Use your estimate to check that your answer is reasonable.

SRB 44, 128, 130

① 2.4 + 9.3 = ? _____ (estimate) 2.4 + 9.3 = _____	② 5.8 + 3.36 = ? _____ (estimate) 5.8 + 3.36 = _____	③ 12.07 + 6.98 = ? _____ (estimate) 12.07 + 6.98 = _____

For Problems 4 and 5, write a number model with a letter for the unknown. Then solve.

④ At the 2012 Summer Olympics in London, Usain Bolt won the men's 100-meter race with a time of 9.63 seconds and the men's 200-meter race with a time of 19.32 seconds. How long did it take the sprinter to run the two races combined?

_____
(number model)

Answer: _____ seconds

⑤ In July 2006, the smallest living horse was 44.5 cm tall, from the ground to its back. In May 2006, the smallest living dog was 10.16 cm tall, from the ground to the top of its head. How far from the ground would the dog's head be if it stood on the horse's back?

_____
(number model)

Answer: _____ cm

Practice

⑥ What is $\frac{1}{2}$ of 12?

Answer: _____

⑦ What is $\frac{1}{2}$ of 11?

Answer: _____

⑧ What is $\frac{1}{5}$ of 11?

Answer: _____

Subtracting Decimals

Home Link 4-13

NAME DATE TIME

SRB 44, 128, 131–132

For Problems 1–3, make an estimate. Write a number sentence to show how you estimated. Then solve the problem using trade-first subtraction, counting-up subtraction, or U.S. traditional subtraction. Use your estimate to check that your answer is reasonable.

① $10.6 - 3.9 = ?$	② $8.97 - 4.22 = ?$	③ $24.29 - 13.37 = ?$
_____ (estimate)	_____ (estimate)	_____ (estimate)
$10.6 - 3.9 =$ _____	$8.97 - 4.22 =$ _____	$24.29 - 13.37 =$ _____

For Problems 4 and 5, write a number model with a letter for the unknown. Then solve.

④ At the 2012 Summer Olympics in London, swimmer Michael Phelps won the gold medal in the men's 100-meter butterfly with a time of 51.21 seconds. The eighth-place swimmer finished in 52.05 seconds. How much faster was Phelps?

Number model: _____

Answer: _____ second

⑤ In May 2009, the longest dog tongue ever measured was 11.43 cm long. In February 2009, the longest human tongue ever measured was 9.8 cm long. How much longer was the dog tongue than the human tongue?

Number model: _____

Answer: _____ cm

Practice

Give the value of the 9 in each decimal.

⑥ 4.897 _____ ⑦ 0.981 _____ ⑧ 49.772 _____

⑨ 6.019 _____ ⑩ 496.12 _____ ⑪ 72.497 _____

Number Stories with Money

Home Link 4-14

NAME DATE TIME

For each number story, write a number model with a letter for the unknown. Then solve. Show your work on the back of this paper.

SRB 44, 130-132

1. You buy a loaf of fresh bread for $1.49 and a bottle of honey for $1.99. How much do you spend in all?

_____
(number model)

Answer: _____

2. Your grocery bill comes to $17.37. You pay with a $20.00 bill. How much change do you get?

_____
(number model)

Answer: _____

3. A pound of strawberries costs $2.49. A pound of apples costs $1.99. How much more money per pound do the strawberries cost than the apples?

_____
(number model)

Answer: _____

4. One granola bar costs 88 cents. How much do two granola bars cost?

_____
(number model)

Answer: _____

Practice

5. Make an estimate. Then divide using partial-quotients division. Write your remainder as a fraction.

$812 \div 17 = ?$

Estimate: _____

Answer: _____

6. Draw an area model to match your solution in Problem 5.

Area (Dividend): _____

Length (Divisor): _____