Name: _____ Date: _____

Chapter 3: Adding and Subtracting Decimals

Estimating Sums

You can often estimate sums of decimal numbers using whole numbers.

For example, 2.89 + 7.04 is close to 3 + 7, which is 10.

1. Estimate each sum.

   a) 5.99 + 5.99 is about _____.

   b) 12.06 + 2.87 is about _____.

   c) 9.81 + 3.26 is about _____.

   d) 1.1 + 4.2 is about _____.

   e) 8 + 6.33 is about _____.

   f) 2.1 + 4 + 3.9 is about _____.

2. Circle the correct sum.

   a) 14.8 + 6.1 = 0.209 or 2.09 or 20.9

   b) 2.69 + 8.92 = 1.161 or 11.61 or 116.1

   c) 25.07 + 0.88 = 2.595 or 25.95 or 259.5

   d) 0.2 + 0.7 = 0.9 or 9.0

3. Norman bought a tomato plant that was 9.3 cm tall.
   It grew 2.1 cm in the first week.
   How tall was his tomato plant after one week?

4. Grace had a ribbon that was 4.59 m long.
   She cut a piece that was 1.04 m to wrap a gift.
   How much ribbon did she have left?

Name: _____ Date: _____

5. Calculate each sum or difference.

a) 8.22 + 4.93

b) 4.9 − 1.2

c) 3.99 + 8.99

d) 51.4 − 43.7

e) 20.00 − 18.25

f) 15.84 + 36.2

6. Hillary bought a snack that cost $0.89.
If she paid with a loonie, what was her change?

7. What is the change for a $12.65 purchase with a $20 bill?

C&P Name: _____ Date: _____

3.3 Estimating Decimal Sums and Differences Page 1

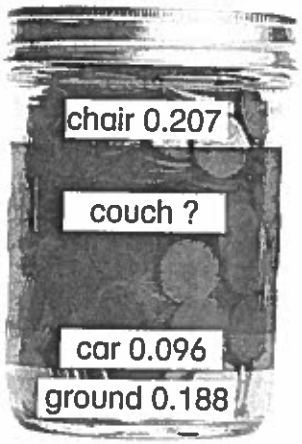
Student Book pages 88–91

Checking

You will need

- thousandths grids
- pencil crayons

1. This jar contains 1000 pennies. Each penny represents 0.001 of the pennies in the jar.



a) Estimate the sum of the 3 decimals given.

Using the "Exact Amount" thousandths grid, colour:

- the number of pennies on the chair (0.207) yellow
- the number of pennies in the car (0.096) green
- the number of pennies on the ground (0.188) purple

Using the "Estimation" thousandths grid, colour:

- your estimate of the number of pennies on the chair yellow
- your estimate of the number of pennies in the car green
- your estimate of the number of pennies on the ground purple

Write in your estimates and add them.

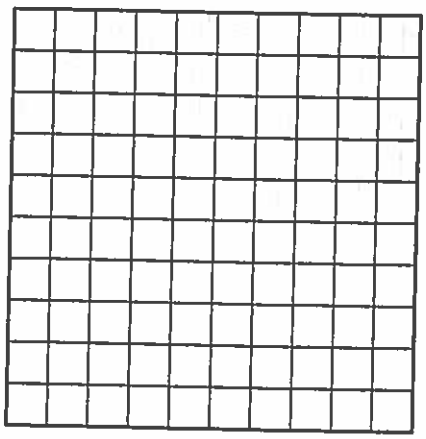
0.207 _____ thousandths

0.096 _____ thousandths

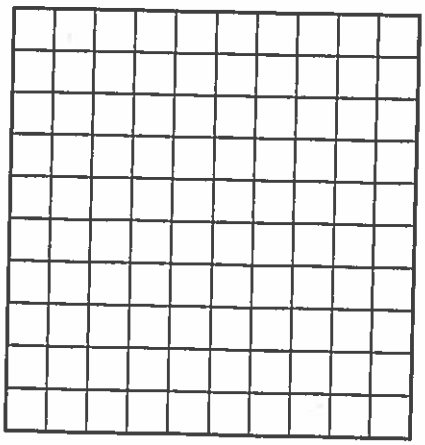
+0.188 + _____ thousandths

_____ thousandths

Estimation



Exact Amount



b) Use your answer for part a) to estimate the number of pennies found on the couch.

Look at your "Estimation" thousandths grid.

About how many more thousandths are left to fill the whole grid? _____

C&P Name: _____ Date: _____

3.3 Estimating Decimal Sums and Differences Page 2

Practising

3. Write your estimate below the numbers and add/subtract.

(Circle) the exact total that is close to your estimate.

Hint: You can use a thousandths grid for the number after the decimal, but do not forget the whole number before the decimal in your final estimate.

a) 2.77 + 6.29

Estimate: _____ + _____ = _____

(Circle) the answer closest to your estimate.

9.06 10.06

b) 0.699 + 0.319

Estimate: _____ + _____ = _____

(Circle) the answer closest to your estimate.

1.018 1.218

c) 2 − 0.499

Estimate: _____ − _____ = _____

(Circle) the answer closest to your estimate.

0.501 1.501

d) 23.698 − 9.777

Estimate: _____ − _____ = _____

(Circle) the answer closest to your estimate.

12.921 13.921

L Name: _____ Date: _____

3.3 Estimating Decimal Sums and Differences Page 1

Student Book pages 88–91

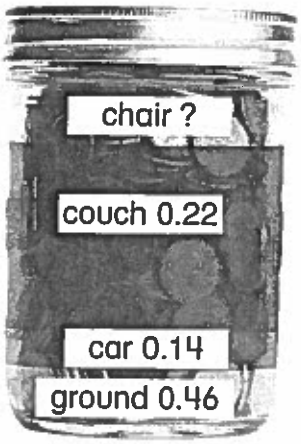
GOAL

Estimate sums and differences with decimals.

You will need

- hundredths grids
- pencil
- crayons

Norman found 100 pennies on the ground, in a car, on a couch, and on a chair. He collected the pennies in a jar.

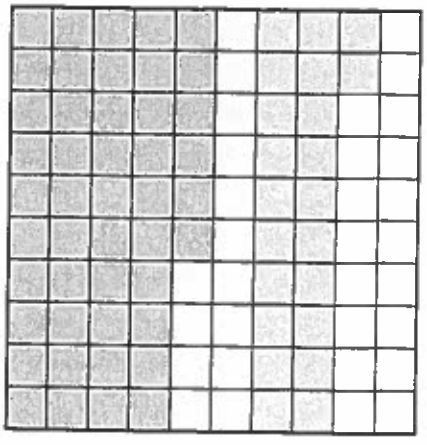


How can you estimate the decimal for the portion of pennies found on the chair?

Each square on the hundredths grid represents 1 hundredth, or 0.01, of the pennies in the jar.

The sum of the 4 decimals for the 4 locations is 100 hundredths or 1.00.

ground	car	couch	chair
0.46	0.14	0.22	?

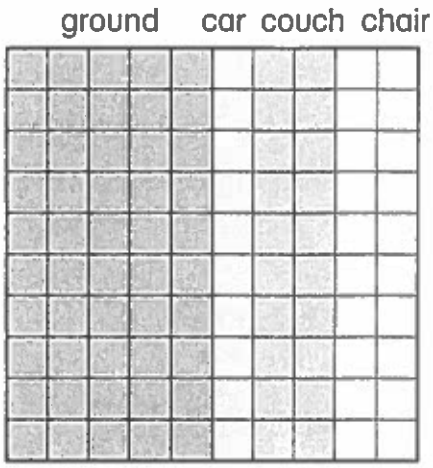


Name: _____ Date: _____

3.3 Estimating Decimal Sums and Differences Page 2

To estimate the sum of 3 known decimals, add close, but easier, numbers.

0.46	50 hundredths
0.14	___ hundredths
+ 0.22	+ ___ hundredths
	___ hundredths



The sum of the 3 known decimals is about _____.

Subtract the sum of the 3 known decimals from 1.00.

1.00 − _____ = _____

So, about _____ hundredths, or _____, of the pennies were found on the chair.

Reflecting

How did using an estimate of the 3 known amounts help you find the estimate of the pennies found on the chair?

_____

_____

_____

How does using a hundredths grid help you to round decimals?

_____

_____

_____

C&P Name: _____ Date: _____

3.4 Adding Decimals Using Mental Math Page 1

Student Book pages 92–93

Checking

You will need

- thousandths grids
- pencil crayons

1. Goldie's birth mass was 0.398 kg. She gained 0.079 kg.

a) Is Goldie's new mass less than or greater than half a kilogram?

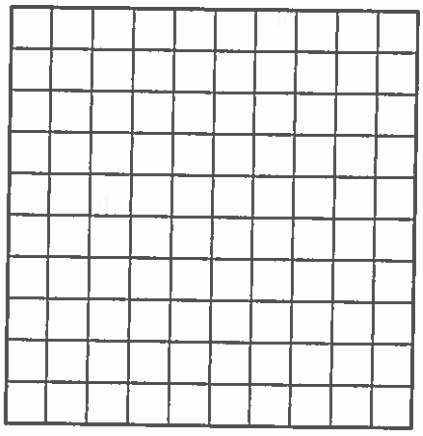
Write half a kilogram in decimal form. _____

Round Goldie's birth mass. _____

Round the weight she gained. _____

Do they add to greater than or less than half a kilogram? _____

b) Calculate Goldie's new mass.



Step 1: Colour 0.398 on the thousandths grid.

Step 2: How many more thousandths are there to reach 0.400? _____

Step 3: Subtract your answer in Step 2 from 0.400.

0.400 − _____

Step 4: Add this amount to 0.079.

0.400 − _____ (result from Step 2)

+0.079

_____ − _____ = _____

What is Goldie's new mass? _____ kg

C&P Name: _____ Date: _____

3.4 Adding Decimals Using Mental Math Page 2

Practising

2. Calculate using mental math.

a) 0.99 _____ − 0.01

+ 0.77 + 0.77

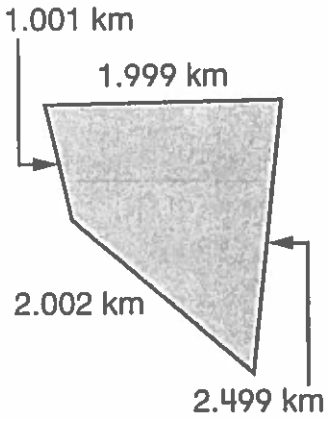
− 0.01 = _____

b) 1.998 _____ − 0.002

+ 0.378 + 0.378

− 0.002 = _____

3. A diagram of a park is shown at the right.



a) Calculate the distance around the park using mental math.

Step 1: Calculate the total of 1.999 + 1.001 using mental math.

Step 2: Calculate the total of 2.499 + 2.002 using mental math.

Step 3: Calculate the sum of Step 1 and Step 2 using mental math.

Step 4: What is the total distance around the park? _____

b) How do you know that your answer is reasonable?

_____

_____

_____

L Name: _____ Date: _____

3.4 Adding Decimals Using Mental Math Page 1

Student Book pages 92–93

GOAL

Solve problems by using mental math to add decimals.

You will need

- hundredths grids
- pencil crayons

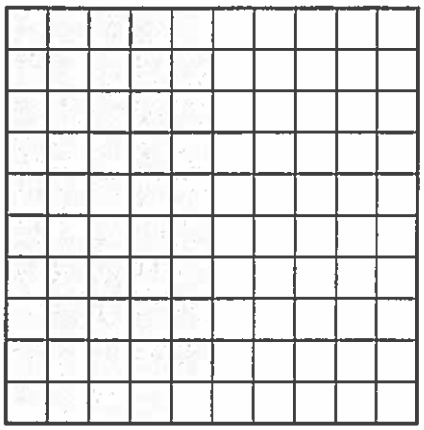
Ami's dog, Bingo, had puppies.

Bingo's birth mass was 0.49 kg, and he gained 0.12 kg.

How can you calculate Bingo's new mass using mental math?

Step 1: Model 0.49 kg on a hundredths grid.

This step has been done for you.



Step 2: Look at the hundredths grid above.

How many squares need to be shaded to reach 0.50? _____

Hint: Remember each square represents 0.01.

How close is 0.49 to 0.50? _____

Colour in the number of squares needed to make 0.50.

Step 3: Add 0.12 kg, the mass that Bingo gained.

$$\begin{array}{r} 0.50 - 0.01 \\ \underline{+\ 0.22} \\ \_\_\_\_\_ - 0.01 = \_\_\_\_\_ \end{array}$$

Bingo's new mass is _____ kg.

L Name: _____ Date: _____

3.4 Adding Decimals Using Mental Math Page 2

Reflecting

Ami knew that Bingo's new mass was between half a kilogram (0.50 kg) and 1 kilogram (1.0 kg). How do you think she knew?

How is adding 0.49 and 0.22 like adding 49 and 22? How is it different?

C&P Name: _____ Date: _____

3.5 Adding Decimals by Regrouping Page 1

Student Book pages 94–97

Checking

You will need

- a decimal place value chart
- base ten blocks

1. Maya measured the masses of the flyers and newspapers her family received in 2 weeks.

	Week 1	Week 2
Newspapers (kg)	1.769	1.898
Flyers (kg)	2.210	1.478

Did Maya's family receive a greater mass of flyers or newspapers?

Step 1: Estimate. Round and then add the 2 weeks.

Newspapers _____ + _____ = _____

Flyers _____ + _____ = _____

Which number is greater: newspapers or flyers? _____

Step 2: Calculate.

Newspapers

Ones	•	Tenths	Hundredths	Thousandths
1		7	6	9
+ 1		8	9	8

Flyers

Ones	•	Tenths	Hundredths	Thousandths
2		2	1	0
+ 1		4	7	8

Which number is greater: newspapers or flyers? _____

Hint: First look at the ones place value. If they are the same, then look at the tenths place value and so on.

Was your answer reasonable? How do you know?

Think about your estimations in Step 1.

_____

_____

_____

C&P Name: _____ Date: _____

3.5 Adding Decimals by Regrouping Page 2

Practising

2. Calculate. Use a place value chart.

a) 4.55 + 0.77

c) 0.965 + 0.378

b) 1.5 + 4.67

Hint: Remember 1.5 = 1.50.

d) 2.769 + 1.569

3. This chart shows the team results for 4 events.

Team Results of Athletic Events

Event	vault	uneven bars	balance beam	floor exercise
Score	38.461	37.986	37.236	36.877

a) Calculate the total team score. Show your work.

b) How do you know your answer is reasonable?

Hint: Use estimation.

L Name: _____ Date: _____

3.5 Adding Decimals by Regrouping Page 1

Student Book pages 94–97

GOAL

Solve problems by adding decimals.

You will need

- a decimal place value chart
- base ten blocks

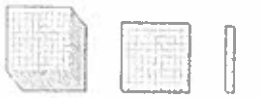
For an Earth Day project, Jay measured the masses of newspapers and flyers his family received in 2 weeks.

Masses of Newspapers and Flyers

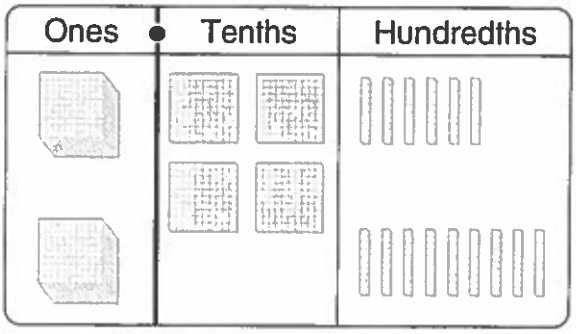
	Week 1	Week 2
Newspapers (kg)	1.46	1.09
Flyers (kg)	1.61	0.97

Did Jay's family receive a greater mass of newspapers or flyers in 2 weeks?

Use blocks to represent each decimal amount.

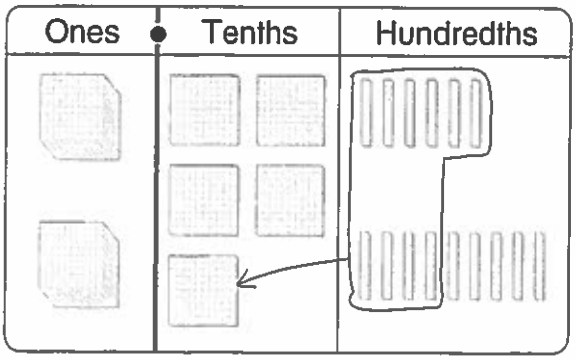


Step 1: Model 1.46 kg and 1.09 kg.



$$\begin{array}{r} 1.46 \\ +\ 1.09 \\ \hline \end{array}$$

Step 2: Add the hundredths and regroup.



$$\begin{array}{r} {\scriptstyle 1} \\ 1.46 \\ +\ 1.09 \\ \hline 5 \end{array}$$

L Name: _____ Date: _____

3.5 Adding Decimals by Regrouping Page 2

Why is there a 1 and a 5 in Step 2?

_____

_____

_____

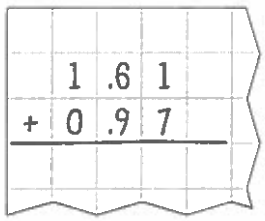
Step 3: Complete the addition in the box in Step 2.

1.46 + 1.09 = _____

How many kilograms of newspapers did Jay's family receive in 2 weeks? _____ kg

Step 4: Calculate the total amount of flyers. First model the 2 numbers and draw them in the place value chart. Then add the equation.

Ones	Tenths	Hundredths



How many kilograms of flyers did Jay's family receive in 2 weeks? _____ kg

Did Jay's family receive a greater mass of newspapers or flyers? _____

Reflecting

Jay estimated that the total mass of the newspapers was close to 2.5 kg.

How did he make this estimate?

_____

_____

_____

How did you decide whether or not to regroup when you added the masses of flyers?

_____

_____

_____

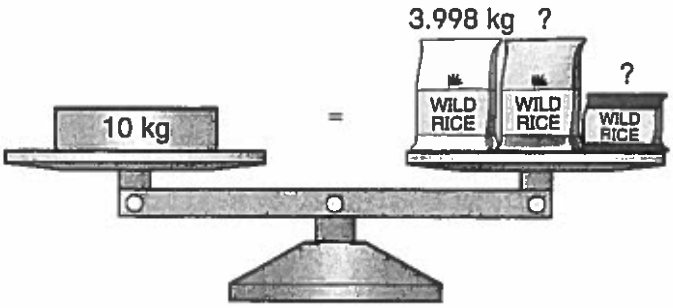
E-A Name: _____ Date: _____

3.6 Exploring Problems that Involve Decimals

Student Book page 100

Owen measured the masses of bags of wild rice using balance scales.

The grey bag is 2 kg more than the black bag.



How many kilograms of rice might be in the grey bag and the black bag?

Step 1: The white bag of rice is 3.998 kg.

3.998 + 0.002 = 4

How can you share 0.002 equally between the grey and black bags? _____

Step 2: 10 = 4 + grey bag + black bag

What number must be the sum of the grey and black bags? _____

Step 3: Think of all possible numbers that can add to the sum in Step 2.

Grey Bag	Black Bag

Look at your chart. What set of numbers shows the grey bag as having 2 more than the black bag? _____

Step 4: Add the thousandths that you shared in Step 1 to the 2 bags. _____

What is the mass of the grey bag? _____ kg

What is the mass of the black bag? _____ kg

How can you check if your answers are correct?

_____

_____

E-B Name: _____ Date: _____

3.6 Exploring Problems that Involve Decimals

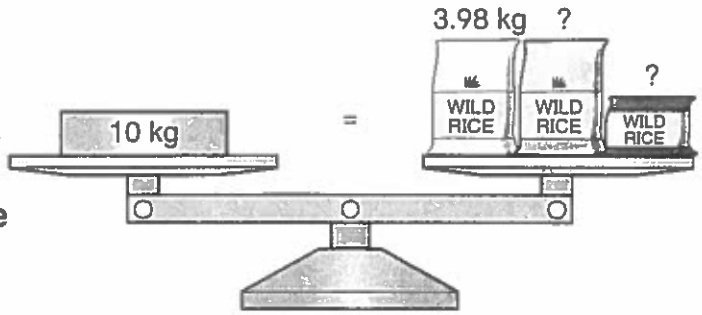
Student Book page 100

GOAL

Use your own strategies to solve a problem that involves adding and subtracting decimals.

Owen measured the masses of bags of wild rice using balance scales.

The grey bag is 2 kg more than the black bag.



How many kilograms of rice might be in the grey bag and the black bag?

Step 1: The white bag of rice is 3.98 kg.

3.98 + 0.02 = 4

You can share 0.02 evenly between the grey and black bags by giving each 0.01.

0.01 + 0.01 = 0.02
grey black

Step 2: 10 = 4 + grey bag + black bag

What number must be the sum of the grey and black bags? _____

Step 3: Think of all possible numbers that can add to the sum in Step 2.

Look at your chart. What set of numbers shows the grey bag as having 2 more than the black bag? _____

Grey Bag	Black Bag

Step 4: Add the 0.01 that you shared in Step 1 to the 2 bags.

_____

What is the mass of the grey bag? _____

What is the mass of the black bag? _____

How can you check if your answers are correct?

_____

_____

C&P Name: _____ Date: _____

3.7 Subtracting Decimals by Regrouping Page 1

Student Book pages 102–105

Checking

You will need

- a decimal place value chart
- base ten blocks

1. Charlene recorded her brother's mass at birth and after 12 months.

Baby's Mass by Age		
Age (months)	Birth	12
Mass (kg)	3.567	12.035

a) How much mass did he gain?

Model 12.035 with base ten blocks and a decimal place value chart.

Subtract. Remember to begin in the thousandths column.

Ones	Tenths	Hundredths	Thousandths
12	0	3	5
− 3	5	6	7

Can you subtract 7 thousandths from 5 thousandths? _____

What do you need to do?

_____

_____

Continue to subtract and regroup if needed.

b) Use estimation to show that your calculation is reasonable.

Round 12.035 and 3.567. Subtract your 2 rounded numbers.

12.035 − 3.567 = _____ − _____ = _____

Is your estimation close to your answer in part a)? _____

c) Use addition to show that your calculation is correct.

Your answer in part a) _____

$$\begin{array}{r} \\ +\ 3.567 \\ \hline 12.035 \end{array}$$

Is it correct? _____

C&P Name: _____ Date: _____

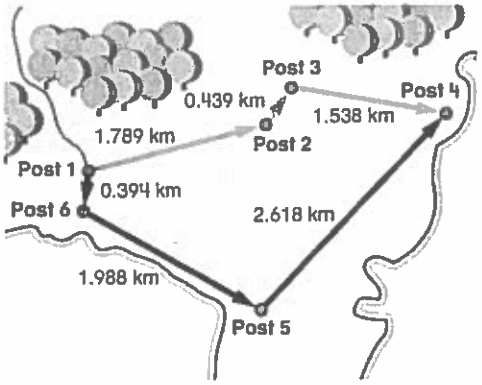
3.7 Subtracting Decimals by Regrouping Page 2

Practising

2. Calculate. Use a place value chart and base ten blocks.

Ones	Tenths	Hundredths	Thousandths
4	1	2	0
− 1	2	8	5

4. Benjamin is at post 1 on the park map. He wants to go fishing at post 4. Calculate the difference in distance between the grey and black routes.



Step 1: Add the distances in the grey routes.

1.789
0.439
+1.538
_____

Step 2: Add the distances in the black routes.

0.394
1.988
+2.618
_____

Step 3: Calculate the difference. Use a place value chart and base ten blocks.

Hint: Enter the larger number in the first row.

Ones	Tenths	Hundredths	Thousandths
−			

L Name: _____ Date: _____

3.7 Subtracting Decimals by Regrouping Page 1

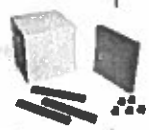
Student Book pages 102–105

GOAL

Regroup to solve subtraction problems.

You will need

- a decimal place value chart
- base ten blocks



Brandon made a chart of his baby masses.

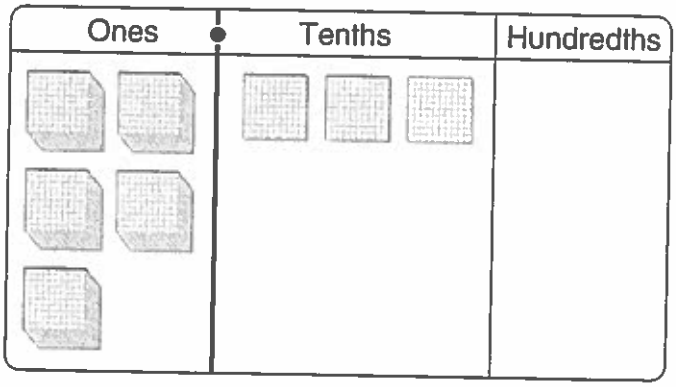
My Mass

Age (months)	Mass (kg)
Birth	2.87
3	5.30
6	6.87

In which period did Brandon have the greatest change in mass?

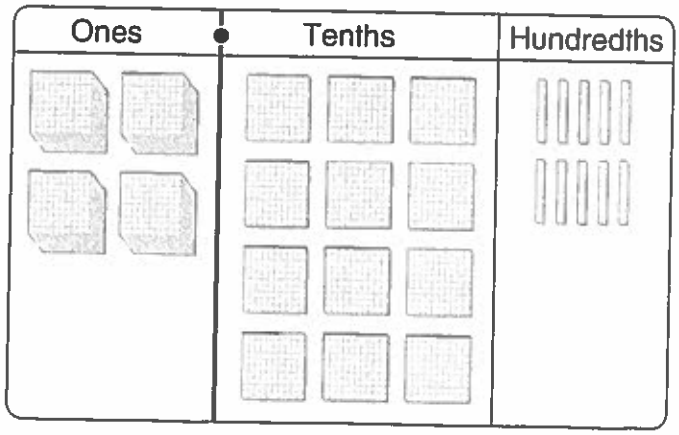
To figure out the change in mass from birth to 3 months, calculate 5.30 − 2.87.

Step 1: Model 5.30 kg, Brandon's mass at 3 months.




```
  5 .3 0
- 2 .8 7
```

Step 2: Regroup 5.30 so that it looks like this. Then you can subtract.




```
    4  12  10
  5 .3  0
- 2 .8  7
```

L Name: _____ Date: _____

3.7 Subtracting Decimals by Regrouping Page 2

A. Complete the solution in the box in Step 2. _____

How much mass did Brandon gain in his first 3 months? _____ kg

B. Estimate to check if your answer is reasonable.

Round 5.30 _____

Round 2.87 – _____

Is the estimate close to your answer in part A? _____

C. Calculate the change in mass between 3 and 6 months.

Model 6.87 and draw it on the place value chart.

Subtract 5.30 from 6.87.

Ones	Tenths	Hundredths

	6	.8	7
-	5	.3	0

Remember to begin with the blocks in the hundredths column. As you subtract, fill in the equation box on the right.

The change in mass between 3 and 6 months is _____ kg.

D. In which 3-month period did Brandon have the greatest change in mass?

Look back at your answers and record them below.

Months	Mass change (kg)
Birth – 3 months	
3 months – 6 months	

The greatest mass change was _____. It took place between _____.

Reflecting

How can you use addition to check your answer in part C?

_____

_____

_____

C&P Name: _____ Date: _____

3.8 Subtracting Decimals by Renaming Page 1

Student Book pages 106–108

Checking

1. In 1960, Harry Jerome set a world record of 10 seconds for the 100 m sprint.
In 2007, the world record was 9.77 seconds.
How many seconds less than Harry Jerome's time is this new time?
You need to calculate 10 − 9.77.

Step 1: Write 10 seconds as 10.00 to hold the place value of the tenths and hundredths.

Step 2: Rename 10.00 as 9.99 + 0.01 so it is easier to subtract.

Step 3: Subtract.

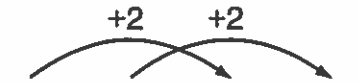
9.99 (+ 0.01)
− 9.77
_____ (+ 0.01) = _____

Remember to add the 0.01 back.

The 2007 world record is _____ seconds less than Harry Jerome's time.

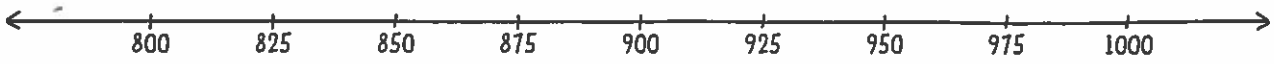
Practising

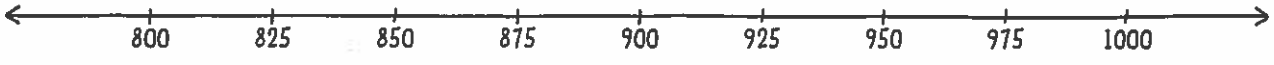
3. Star often subtracts 2 whole numbers by adding the same amount to both numbers.



1000 − 198 = 1002 − 200 1000 − 198 = 802

a) Show how this method works by using number lines.





Explain why your number lines show how Star's method works.

_____

_____

_____

C&P Name: _____ Date: _____

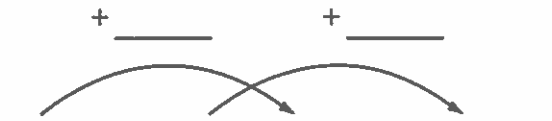
3.8 Subtracting Decimals by Renaming Page 2

b) Calculate 10 − 1.998 using Star's method.

Write 10 as a decimal to hold the place values. _____

What do you need to add to 1.998 to get to the next whole number? _____

Add this number to both numbers in the equation.



_____ − 1.998 = _____ − _____

10 − 1.998 = _____

4. Emily is riding her mountain bike along a trail.

a) She stops to have a drink at rest stop A.

How much farther does Emily have to ride to complete the trail?

The end of the trail is _____ km.

Put that number in decimal form. _____

Rest stop A is _____ km.

What is your equation? _____ − _____ = _____

Rename the first number and subtract.

b) How do you know your answer is reasonable?

Hint: Use estimation or addition to check your answer.

_____

_____

_____

c) How far is rest stop B from the end of the trail?

Look at what you did in part a) to help you.

_____

_____

_____

L Name: _____ Date: _____

3.8 Subtracting Decimals by Renaming Page 1

Student Book pages 106–108

GOAL

Rename decimals to make subtraction easier.

In 1996, Curt Harnett became the first person to cycle 200 m in less than 10 seconds. He set a world record of 9.86 seconds.

How much less than 10 seconds is Curt Harnett's world record time?

Curt's time is about 0.1 seconds less than 10 seconds.

Step 1: Calculate 10 − 9.86.

First write 10 as 10.00 to hold the place value of the tenths and hundredths.

10.00
− 9.86

Step 2: Rename 10.00 as 9.99 + 0.01 so that it is easier to subtract.

9.99 + 0.01
~~10.00~~
− 9.86

Step 3: Subtract.

9.99 + 0.01
~~10.00~~
− 9.86
_____

Step 4: Add back the 0.01.

9.99 + 0.01
~~10.00~~
− 9.86
_____ + 0.01 = _____

Curt Harnett's time is _____ seconds less than 10 seconds.

L Name: _____ Date: _____

3.8 Subtracting Decimals by Renaming Page 2

Reflecting

Why did you add 0.01 in Step 4?

Use regrouping to subtract 9.86 from 10. Is the strategy of renaming 10 more efficient? Explain.

Name: _____ Date: _____

Chapter 3 Lesson 1

Estimating Whole-Number Sums and Differences

GOAL

Estimate sums and differences to solve problems.

1. Estimate each sum. Show the numbers you used.

a) 41 008 + 29 100 is about

_____

b) 8 726 + 1 974 is about

_____

c) 301 040 + 512 113 is about

_____

2. Estimate each difference.

a) 18 015 − 2 632 is about

_____

b) 9 499 − 3 999 is about

_____

c) 700 988 − 501 012 is about

_____

At-Home Help

To estimate sums and differences, use nearby numbers that are easy to work with. For example:

Estimate 18 948 − 2 085.

18 948 is about 19 000.
2 085 is about 2 000.
19 000 − 2 000 = 17 000

OR

18 948 is about 18 900.
2 085 is about 2 100.
18 900 − 2 100 = 16 800

3. A weather balloon was sent up into the atmosphere. First, it rose to 48 700 m. Then it dropped down to 18 980 m. About how many metres did it drop?

4. 297 021 adults and 321 514 children live in Lakeview. About how many people live in Lakeview?

Name: _____ Date: _____

Chapter 3 Lesson 2

Communicating about Estimating and Calculating

GOAL

Explain clearly how to estimate and calculate.

1. Tyler estimated the total number of students.

Students at Lakeview Junior School

Grade	Number of students
Kindergarten and Grade 1	792
Grades 2 and 3	1046
Grades 4 and 5	3217

At-Home Help

Communication Checklist

- ✔ Did you explain your thinking?
- ✔ Did you show all the steps?
- ✔ Did you use math language?

Tyler's solution and explanation:

I can solve the problem by figuring out out how many students there are. The first two numbers are both about 1000. All the numbers together are about 5000.

a) How can Tyler improve his explanation? _____

_____

b) Write a new solution and explanation. Use the Communication Checklist.

_____

_____

_____

_____

2. About how many trees are in Lakeview Forest? Use the Communication Checklist.

_____

_____

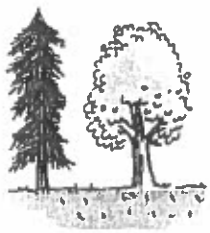
_____

_____

_____

Trees in Lakeview Forest

Kind of tree	Number of trees
pine	286 215
oak	109 283
maple	327 003



Name: _____ Date: _____

Chapter 3
Lesson 3

Estimating Decimal Sums and Differences

GOAL

Estimate sums and differences with decimals.

1. Estimate each sum.

a) 0.32 + 0.28 is about _____

b) 0.099 + 0.410 is about _____

c) 1.03 + 2.61 is about _____

2. Estimate each difference.

a) 1.99 − 1 is about _____

b) 0.821 − 0.490 is about _____

c) 3.97 − 0.77 is about _____

3. Estimate to match the sums and differences with the correct answers.

0.713 − 0.522	2.02
4.80 − 0.32	0.631
0.229 + 0.402	0.066
0.047 + 0.019	0.801
2.99 − 0.97	4.48
0.062 + 0.739	0.191

4. Rebecca's bedroom walls have an area of 17.29 square metres. She has enough yellow paint to cover 11.88 square metres. She has enough white paint to cover 5.11 square metres. Does Rebecca have enough paint to colour her bedroom yellow and white?

At-Home Help

To estimate sums and differences, use nearby numbers that are easy to work with. For example:
Estimate 0.685 + 0.199.
0.685 is about 0.7.
0.199 is about 0.2.
0.7 + 0.2 = 0.9
So 0.685 + 0.199 is about 0.9.

Name: _____ Date: _____

Chapter 3
Lesson 4

Adding Decimals Using Mental Math

GOAL

Solve problems by using mental math to add decimals.

1. Add using mental math.

a) 0.49 + 1.51 _____

b) 0.99 + 0.11 _____

c) 0.001 + 0.099 _____

d) 1.010 + 1.090 _____

2. Add using mental math.

a) 2.999 + 0.054 _____

b) 0.847 + 5.999 _____

c) 4.001 + 0.973 _____

d) 3.498 + 2.002 _____

At-Home Help

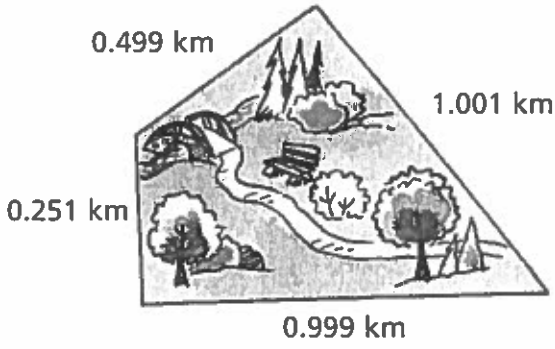
Here is one way to add decimals using mental math:

Add (or subtract) a little bit to one number to round it. Then subtract (or add) the same amount from the other number.

For example, add 2.99 + 0.73. Add 0.01 to the first number to get 3. Subtract 0.01 from the second number to get 0.72. 3.00 + 0.72 = 3.72

3. Ami went for a walk around the park.

a) How far did Ami walk? Show your work.



b) Use estimating to check your answer. Show your work.

Name: _____ Date: _____

Chapter 3 Lesson 5

Adding Decimals by Regrouping

GOAL

Solve problems by adding decimals.

1. Calculate.

a) $0.039 + 0.153$

b) $0.875 + 0.125$

c) $1.522 + 0.180$

d) $5.423 + 2.627$

2. Tyler added 1.228 + 0.457 like this:

1.228 + 0.400 = 1.628
1.628 + 0.050 = 1.678
1.678 + 0.007 = 1.685

a) Use Tyler's method to add 0.944 + 0.045. Show your work.

b) Use Tyler's method to add 4.283 + 0.164. Show your work.

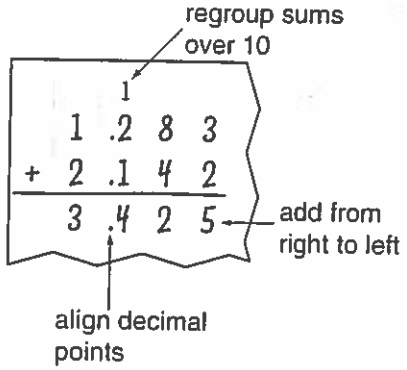
At-Home Help

Here is one way to add decimals:

Step 1: Line up digits with the same place value.

Step 2: Add the thousandths, then hundredths, then tenths, then ones.

Step 3: If any sum is more than 10, regroup.



3. Calculate. Choose your own method.

a) 0.412 + 1.388

b) 2.871 + 3.006

c) 1.862 + 3.501

Name: _____ Date: _____

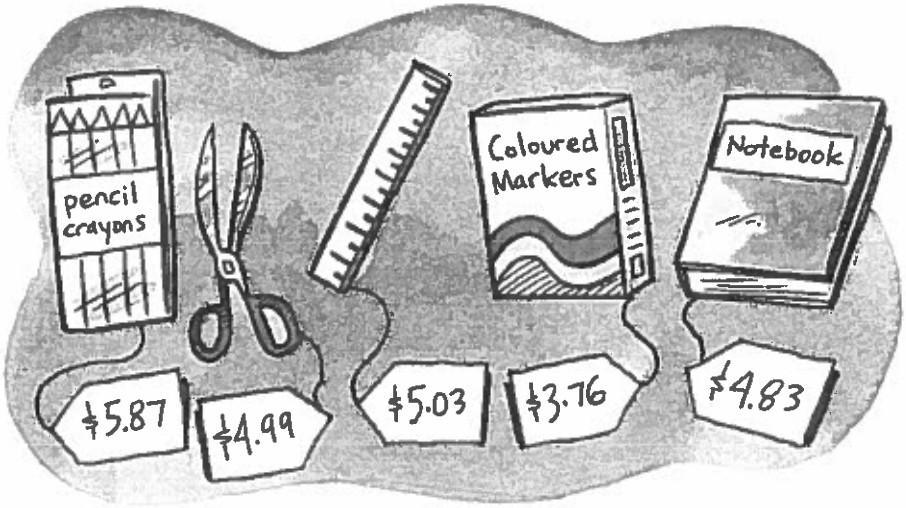
Chapter 3
Lesson 6

Exploring Problems that Involve Decimals

GOAL

Use your own strategies to solve a problem that involves adding and subtracting decimals.

Ami has $20.00. She bought a pencil case for $6.29.
She wants to buy three more things.
Which things can she buy?
Give Ami two choices. Show your work.



Name: _____ Date: _____

Chapter 3 Lesson 7

Subtracting Decimals by Regrouping

GOAL

Regroup to solve subtraction problems.

1. Maya used regrouping to subtract.

a) How did Maya regroup 1.724 to get 1 one, 6 tenths, 12 hundredths, and 4 thousandths?

$$\begin{array}{r} 1\ \ 6\ \ 12\ \ 4 \\ \cancel{1}\ .\cancel{7}\ \cancel{2}\ \cancel{4} \\ -\ 0\ .5\ 8\ 3 \\ \hline \end{array}$$

_____

_____

_____

b) Complete Maya's subtraction.

2. Calculate.

a) $\begin{array}{r} 0.82 \\ -\ 0.26 \\ \hline \end{array}$

b) $\begin{array}{r} 2.07 \\ -\ 1.95 \\ \hline \end{array}$

c) $\begin{array}{r} 2.405 \\ -\ 0.500 \\ \hline \end{array}$

d) $\begin{array}{r} 5.000 \\ -\ 0.226 \\ \hline \end{array}$

3. Rebecca hiked 2.062 km of a 4.500 km hike. How much of the hike is left?

At-Home Help

You can regroup decimals to help you subtract. For example, subtract 5.275 – 2.338.

Regroup 5.275 to make the subtraction easier.

Regroup 5 ones and 2 tenths as 4 ones and 12 tenths.

Regroup 7 hundredths and 5 thousandths as 6 hundredths and 15 thousandths.

$$\begin{array}{r} 4\ \ 12\ \ 6\ \ 15 \\ \cancel{5}\ .\cancel{2}\ \cancel{7}\ \cancel{5} \\ -\ 2\ .3\ 3\ 8 \\ \hline 2\ .9\ 3\ 7 \end{array}$$

Name: _____ Date: _____

Chapter 3 Lesson 8

Subtracting Decimals by Renaming

GOAL

Rename decimals to make subtraction easier.

1. Jay wants to calculate 9 − 0.46. How can he rename the 9 to help him subtract?

_____

2. Calculate by renaming. Show your work.

a) 5.0 − 0.2

b) 9 − 0.08

c) 3 − 0.472

d) 1 − 0.721

e) 6.000 − 3.625

At-Home Help

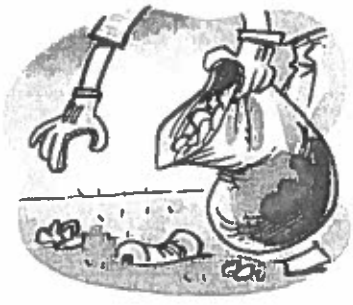
You can rename decimals to help you subtract. For example, 5 − 0.743.

First, rename 5 as 4.999 + 0.001.

$$\begin{array}{r} 4.999 + 0.001 \\ \cancel{5.000} \\ -\ 0.743 \\ \hline 4.256 + 0.001 = 4.257 \end{array}$$

3. Owen, Sydney, and Jolie are collecting 4.00 kg of garbage each for Earth Day.
So far, they have collected these amounts of garbage:
Owen 0.72 kg, Sydney 3.02 kg, Jolie 2.145 kg.
How much more does each student need to collect?

Owen: Sydney: Jolie:



Name: _____ Date: _____

Chapter 3 Test Yourself

Circle the correct answer.

1. Estimate to choose the correct answer for 10 362 + 28 364.

A. 29 676 **B.** 38 726 **C.** 45 696 **D.** 59 019

2. Which number is a good estimate for the sum 498 + 1066 + 3512?

A. 2000 **B.** 3000 **C.** 4000 **D.** 5000

3. Estimate to choose the correct answer for 1.08 + 0.66.

A. 1.74 **B.** 0.74 **C.** 2.74 **D.** 7.4

4. Estimate to choose the correct answer for 0.975 − 0.222.

A. 75.3 **B.** 7.53 **C.** 0.753 **D.** 0.0753

5. Calculate 0.34 + 0.11.

A. 0.23 **B.** 0.45 **C.** 0.83 **D.** 0.51

6. Calculate 2.82 + 5.17.

A. 3.72 **B.** 8.11 **C.** 7.99 **D.** 6.125

7. Calculate 0.283 + 1.347.

A. 1.63 **B.** 1.072 **C.** 3 **D.** 1.520

8. Calculate 0.882 + 0.442.

A. 2.413 **B.** 4.231 **C.** 3.124 **D.** 1.324

9. Estimate to choose the correct answer for 4.82 − 1.77.

A. 0.305 **B.** 3.05 **C.** 30.5 **D.** 305

10. Calculate 0.812 − 0.471.

A. 0.341 **B.** 0.421 **C.** 0.881 **D.** 0.651

11. Calculate 7 − 0.436.

A. 6.722 **B.** 5.832 **C.** 6.564 **D.** 7.129

Subtracting Decimal Numbers

Name _____

Find the difference between 76.91 and 39.45.

Line up the decimal points. → Subtract the hundredths. Trade? yes → Subtract the tenths. Trade? no → Subtract the ones. Trade? yes

76.91	8 11 76.~~9~~1	811 76.~~9~~1	6 16 811 ~~76~~.~~9~~1
−39.45	−39.45	−39.45	−39.45
...0	. 6	.46	37.46

Write the decimal point.

The difference is 37.46

Subtract.

1. 7 11 ~~8.1~~ −2.7 5.4	2. 97.7 − 8.3 _____	3. 52.2 −13.8 _____	4. 9.15 −6.46 _____	5. 240.2 − 97.5 _____
6. 198.61 − 53.45	7. 213.27 −105.15	8. 104.81 − 69.76	9. 222.09 −209.93	10. 564.75 −386.58

Line up the decimal points. Subtract.

11. 15.8 − 6.4

−_____

12. 37.54 − 28.15

−_____

13. 298.17 − 176.55

−_____

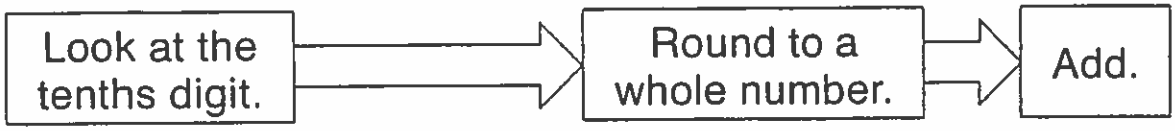
14. 403.3 − 183.8

−_____

Estimating Decimal Sums

Name _____

Estimate the sum of 82.41 and 136.75 by rounding to the nearest whole number.



82.41 — Think: the tenths digit is less than 5, so round down. → 82

+136.75 — Think: the tenths digit is greater than 5, so round up. → 137

$$\begin{array}{r} 82 \\ +137 \\ \hline 219 \end{array}$$

The estimated sum is 219.

Estimate the sum by rounding to the nearest whole number.

1. 72.22 →
   +109.02 → + _____

2. 55.61 →
   +41.17 → + _____

3. 38.56 →
   +224.88 → + _____

Estimate the sum by rounding to the nearest 10.

To round to the nearest 10, look at the ones digit.

4. 28.36 →
   +13.59 → + _____

5. 44.93 →
   +57.31 → + _____

6. 129.39 →
   + 54.40 → + _____

Estimate the sum by rounding to the nearest 100.

To round to the nearest 100, look at the tens digit.

7. 679.15 →
   +238.54 → + _____

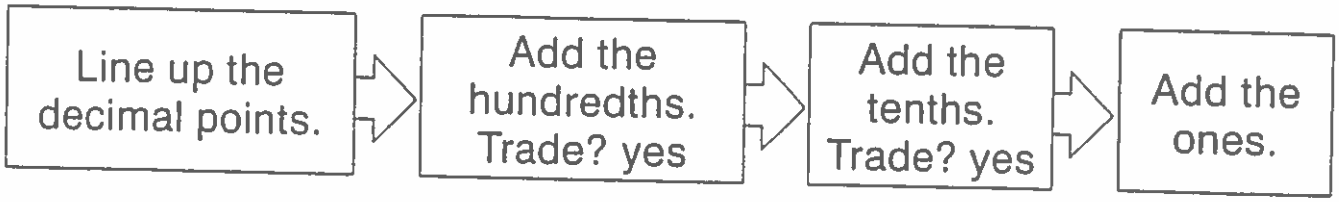
8. 346.88 →
   +550.24 → + _____

9. 783.43 →
   +173.56 → + _____

Adding Decimal Numbers

Name _____

Add these decimal numbers: 8.46 and 7.95.



$$\begin{array}{r} 8.46 \\ +7.95 \\ \hline \end{array}$$

Write the decimal point.

$$\begin{array}{r} 8.46 \\ +7.95 \\ \hline .\ \ 1 \end{array}$$

$$\begin{array}{r} {\scriptstyle 1\ \ \ } \\ 8.46 \\ +7.95 \\ \hline .41 \end{array}$$

$$\begin{array}{r} {\scriptstyle 1\ 1} \\ 8.46 \\ +7.95 \\ \hline 16.41 \end{array}$$

The sum is 16.41

Add.

Remember to trade when you need to.

1. $\begin{array}{r} 2.4 \\ +5.6 \\ \hline \_\_\_.\_\_\_ \end{array}$

2. $\begin{array}{r} 6.3 \\ +3.5 \\ \hline \_\_\_.\_\_\_ \end{array}$

3. $\begin{array}{r} 7.8 \\ +9.6 \\ \hline \_\_\_.\_\_\_ \end{array}$

4. $\begin{array}{r} 4.1 \\ +8.7 \\ \hline \_\_\_.\_\_\_ \end{array}$

5. $\begin{array}{r} 5.91 \\ +4.73 \\ \hline \_\_\_.\_\_\_ \end{array}$

6. $\begin{array}{r} 2.59 \\ +8.21 \\ \hline \end{array}$

7. $\begin{array}{r} 19.70 \\ +56.81 \\ \hline \end{array}$

8. $\begin{array}{r} 60.39 \\ +74.94 \\ \hline \end{array}$

9. $\begin{array}{r} 153.49 \\ +\ 29.08 \\ \hline \end{array}$

10. $\begin{array}{r} 338.68 \\ +167.17 \\ \hline \end{array}$

Line up the decimal points. Add.

11. 7.3 + 5.4

$$+\_\_\_\_$$

12. 9.5 + 3.6

$$+\_\_\_\_$$

13. 67.11 + 85.49

$$+\_\_\_\_$$

14. 321.06 + 182.58

$$+\_\_\_\_$$

Adding Several Decimal Numbers

Name _____

Add these decimal numbers: 7.62, 24.85, 35.61, 9.34

Line up the decimal points. → Add the hundredths. Trade? yes → Add the tenths. Trade? yes → Add the tens and ones.

↓	1	2 1	2 1
7.62	7.62	7.62	7.62
24.85	24.85	24.85	24.85
35.61	35.61	35.61	35.61
+ 9.34	+ 9.34	+ 9.34	+ 9.34
.00 Write the decimal point.	. 2	.42	77.42

The sum is 77.42

Add.

Remember to trade when you need to.

1. 1
   4.0
   9.2
   + 3.8
   17.0

2. 47.1
   8.4
   +29.3
   ____.

3. 18.3
   12.6
   +33.9
   ____.

4. 52.5
   68.4
   +87.7
   ____.

5. 1 1
   45.82
   107.05
   224.30
   + 81.41
   458.58

6. 561.10
   73.91
   115.30
   + 7.53

7. 616.29
   310.26
   94.19
   +273.62

8. 242.75
   59.78
   450.47
   + 74.64

Line up the decimal points. Add.

9. 13.5 + 95.7 + 148.9

   +_____

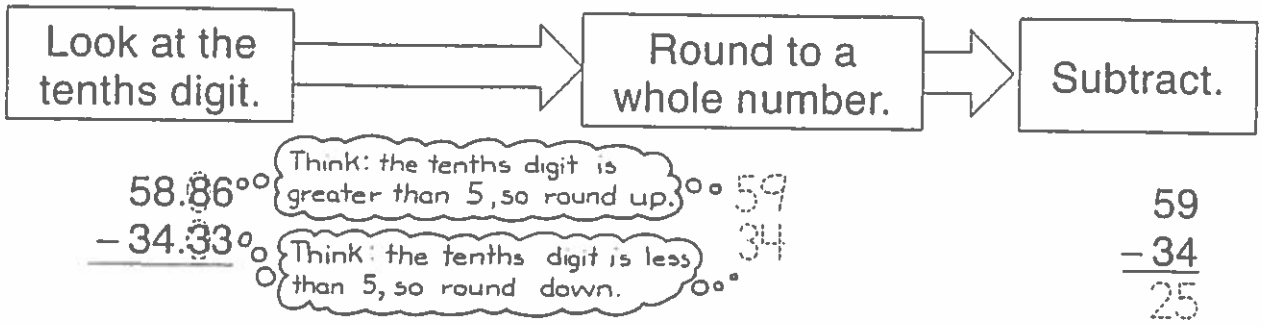
10. 29.14 + 108.36 + 275.54

    +_____

Estimating Decimal Differences

Name _____

Estimate the difference between 34.33 and 58.86 to the nearest whole number.



The estimated difference is 25.

Estimate the difference by rounding to the nearest whole number.

1. 62.2 → 62
   −17.7 → − 18
   _____

2. 81.0 → 81
   −21.3 → − 21
   _____

3. 49.53 → 50
   −24.85 → − 25
   _____

4. 125.54 → 126
   − 87.98 → − 88
   _____

5. 290.72 → 291
   −114.27 → − 114
   _____

6. 754.45 → 754
   −503.02 → − 503
   _____

Estimate the difference by rounding to the nearest 10.

To round to the nearest 10, look at the ones digit.

7. 93.13 → 90
   −57.62 → − 60
   _____

8. 854.45 → 850
   −293.13 → − 290
   _____

9. 826.26 → 830
   −618.57 → − 620
   _____

Name: _____ Date: _____

Scaffolding for Getting Started Page 1

STUDENT BOOK PAGES 80–81

Going to the Movies

Suppose you win these movie gift cards in a contest.

? Who can go with you to a movie?

A. Choose three or more people to take to a movie with you. Estimate the total cost of the movie tickets.

Person	Cost (adult, child, senior)	Estimated cost
You	$8.95	$9

Explain how you estimated. _____

_____

B. Calculate the total cost of the movie tickets. Explain your method of calculating.

_____

_____

_____

Name: _____ Date: _____

Scaffolding for Getting Started Page 2

STUDENT BOOK PAGES 80–81

Going to the Movies

C. Compare your sum for Part B with your estimate for Part A.
Is your sum for part B reasonable?
How do you know?

_____

_____

_____

D. Which gift cards would you use to pay for the tickets?
Explain your choice.
Note: There are many possible answers. Make sure that the gift cards total more than the actual cost in Part B.

_____

_____

_____

E. How much will you have left when you pay with the gift cards in Part D?

Gift Cards Used (Part D) − Total Cost (Part B) = Amount left

_____ − _____ = _____

F. Repeat Parts A to E for a different group of people.

Name: _____ Date: _____

Scaffolding for Lesson 1, Question 3

STUDENT BOOK PAGES 84

3. a) How do you know that the sum of 3867 and 2819 is between 5000 and 7000?
Here are two ways you might estimate this sum.

- **Front-end estimation:** Use the digits in the greatest place value.

$3867 + 2819 = 3000 +$ _____

$=$ _____ (This is an underestimate.)

- **Rounding:** Use the value of the hundreds place to determine whether to round up or down to the nearest thousands place.

$3867 + 2819 = 4000 +$ _____

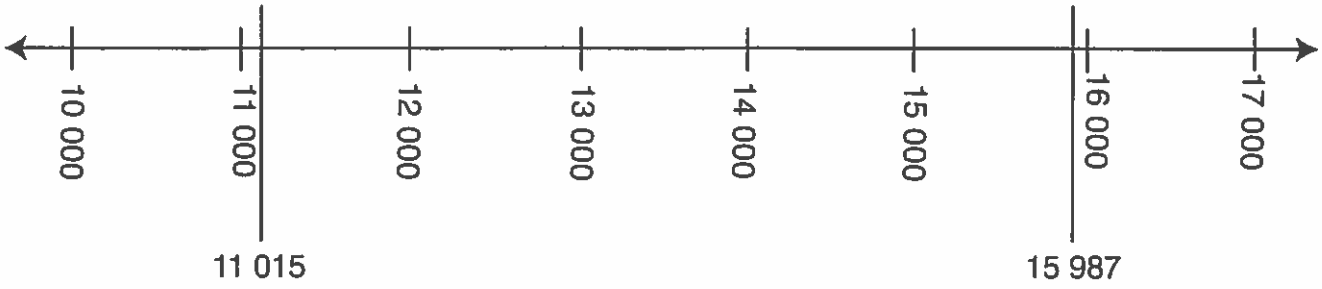
$=$ _____ (This is an overestimate.)

How do you know that the sum of 3867 and 2819 is between 5000 and 7000?

_____

_____

b) How do you know that the difference between 15 987 and 11 015 is greater than 4000? Use estimation and the number line to explain.



_____

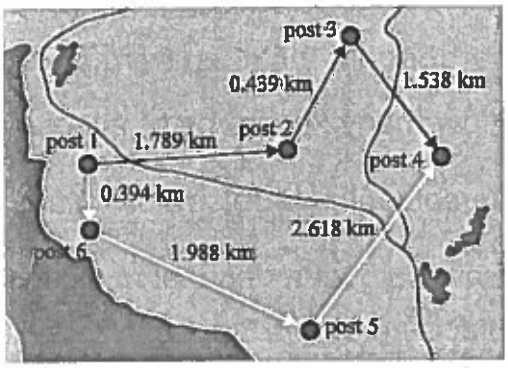
_____

Name: _____ Date: _____

Scaffolding for Lesson 7, Question 3

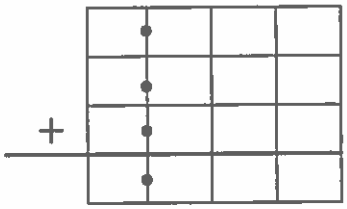
STUDENT BOOK PAGE 104

4. Benjamin is at Post 1 on the park map. He wants to go fishing at Post 4. Calculate the difference in distance between the white route and the black route.



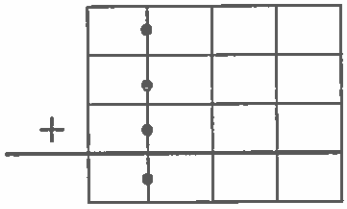
Determine the black route distance by adding the distances between the posts:

Post 1 to Post 2 ⟶
Post 2 to Post 3 ⟶
Post 3 to Post 4 ⟶
Route total ⟶



Determine the white route distance by adding the distances between the posts:

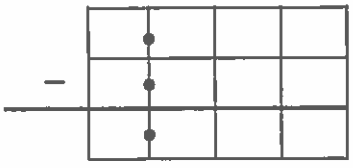
Post 1 to Post 6 ⟶
Post 6 to Post 5 ⟶
Post 5 to Post 4 ⟶
Route total ⟶



Determine the difference between the routes by subtracting.

Regroup the place values in the white route as needed.

White Route ⟶
Black Route ⟶
Difference ⟶



Name: _____ Date: _____

Scaffolding for Lesson 8, Question 2

STUDENT BOOK PAGE 107

2. Barrett bought 2.635 kg from a 5 kg block of cheese.

a) How many kilograms of cheese are left?

To solve this problem, calculate 5 − _____.

Rewrite 5 as a decimal number with place-holding zeros: _____

Next, use renaming.

Step 1: Rename 5 as 4.999 + _____.

Step 2: Subtract.

$$\begin{array}{r} 4.999 \\ -2.635 \\ \hline \_\_\_\_\_ \end{array} \quad + 0.001$$

_____ + 0.001 = _____

Step 3: Add back the 0.001. _____

b) How do you know your answer is reasonable?

Use estimation.

2.635 is close to 2.5.

So, 5 − 2.635 is about 5 − _____, which equals _____.

Is this estimated difference close to the answer you got in part a)? _____

Explain in words how you know your answer is reasonable. _____

_____

_____

Name: _____ Date: _____

Chapter 3 Test Page 1

1. Colton hopes to get 10 000 signatures by March 31 on a petition that opposes a new shopping centre in town.

About how many more signatures are needed? _____

Explain how you estimated.

_____

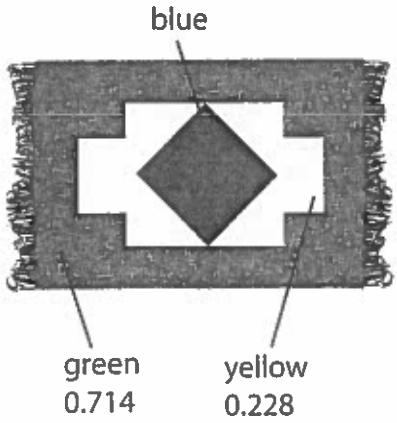
_____

Signatures on Petition

Month	Number of signatures
January	2896
February	4032
March	

2. A truck can carry 4000 kg safely. Can the truck carry these three crates safely?

3. Estimate the decimal for the portion of the rug that is blue.



4. Solve each problem using mental math.

a) A sandwich costs $6.95 and juice costs $1.95, including taxes. What is the total cost?

b) The drive from home to school is 1.534 km. The drive from school to tumbling class is 4.999 km. What is the total driving distance from home to tumbling class?

Name: _____ Date: _____

Chapter 3 Test Page 2

5. Calculate. Choose two of your answers and explain how you know they are reasonable.

a) 3.824 + 1.219

b) 0.683 + 0.149

c) 5.117 + 5.8

d) 0.594 + 8.21

6. Estimate to place the decimal point in each sum. Show your work for one of the answers.

a) 2.59 + 1.33 = 392

b) 32.69 + 15.18 = 4787

c) 0.972 + 0.216 + 0.304 = 1492

d) 0.5 + 7.49 + 6.998 = 14988

7. During a science experiment, Gabrielle measured the masses of different substances and their containers. What is the mass of each substance without its container? Explain how you know that your answers are reasonable.

Mass of Substance and Its Container

Substance	Mass of substance with container (kg)	Mass of container (kg)
water	0.832	0.261
salt	0.137	0.07
sugar	0.089	0.063

Name: _____ Date: _____

Chapter 3 Test Page 3

8. Calculate. Choose one of your answers and explain how you know it is reasonable.

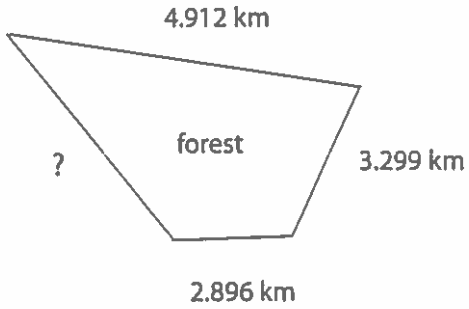
a) 12 − 7.499

c) 8.492 − 2.8

b) 9.451 − 0.489

d) 7.4 − 3.126

9. The perimeter of the forest is 15.000 km.



a) What is the missing length?

b) How do you know that your answer is reasonable?

_____

_____

10. Estimate to place the decimal point in each difference. Show your work for one answer.

a) 18 − 5.932 = 12068

c) 7 − 2.198 = 4802

b) 35 − 6.9 = 281

d) 2 − 0.117 = 1883

Name: _____ Date: _____

Chapter 3 Task Page 1

STUDENT BOOK PAGE 113

Gold Coins

The chart below shows the weights, masses, and values of the five types of Canadian Maple Leaf gold coins.

Gold Coins

Weight (troy ounces)	1.000	0.500	0.250	0.100	0.050
Mass (kg)	0.031	0.016	0.008	0.003	0.002
Value ($)	50	20	10	5	1

Ami has a collection of Canadian Maple Leaf gold coins.
She put them in a coin collection book.

? What are the values and masses of Ami's gold coins?

Read the Task Checklist before you begin.

A. Three gold coins have a total weight of 1.750 troy ounces. What is their value?

Find three gold coins that have a total weight of 1.750 troy ounces and fill in the blanks below. Then, calculate the total value of these coins.

Coin 1 ☐ troy ounces value $ ☐

Coin 2 ☐ troy ounces value $ ☐

Coin 3 ☐ troy ounces value $ ☐

\+ _____ \+ _____

Total 1.750 troy ounces value $ ☐

Task Checklist

- ❑ Did you show all of your steps?
- ❑ Did you check that your calculations are reasonable?
- ❑ Did you explain your thinking?

Name: _____ Date: _____

Chapter 3 Task Page 2

B. What is the total mass of the three coins in kilograms?
Determine the mass of each of the three coins from Part A.
Then, calculate the sum.

_____ kg + _____ kg + _____ kg = _____ kg

C. Four other gold coins have a total weight of 0.500 troy ounces.
What is their total value and mass?

Coin 1		troy ounces	value $		mass		kg
Coin 2		troy ounces	value $		mass		kg
Coin 3		troy ounces	value $		mass		kg
Coin 4		troy ounces	value $		mass		kg
+	_____		+	_____	+	_____	
Totals	0.500	troy ounces	value $		mass		kg

D. Some other coins have a total value of $27. How many troy ounces and kilograms of gold coins could there be?

There will be more than one correct answer.

_____

_____

_____

E. Create and solve your own problem about a gold coin collection.

_____

_____

_____