Get Ready

Name: _____ Date: _____

Place Value

Arranging numbers in place value charts can help with estimation.
The place value chart below shows 1247.63.

Thousands	Hundreds	Tens	Ones	Decimal Point	Tenths	Thousandths
1	2	4	7	•	6	3

The number 1248.63 is one more than 1247.63.

Look at the ones place. 7 + 1 = 8

The number 1147.63 is one hundred less than 1247.63.

Look at the hundreds place. 2 – 1 = 1

The number 1247.83 is two tenths more than 1247.63.

Look at the tenths place. 6 + 2 = 8

1. Arrange the numbers in the place value chart.

	Thousands	Hundreds	Tens	Ones	Decimal Point	Tenths	Hundredths	Thousandths
a) 1349.52								
b) 45.069								
c) 100.05								
d) 0.455								

Compare and Order Numbers

You can use a place value chart to compare and order numbers.
The numbers 270, 2.7, and 27 are shown in the following place value chart.

	Hundreds	Tens	Ones		Tenths
270	2	7	0	•	0
2.7	0	0	2	•	7
27	0	2	7	•	0

The numbers arranged from greatest to least are 270, 27, and 2.7.
You can write this as 270 > 27 > 2.7.

The symbol > means "is greater than."

2. Arrange each set of numbers from greatest to least.

a) 1.8, 2.8, 1.9

b) 365.7, 358, 365.9

3. Use the symbol > to show the numbers arranged from greatest to least.

a) 1.9, 2.4, 2

b) 5, 4.3, 0.7

Name: _____ Date: _____

Use Mental Mathematics

Mental mathematics includes estimating and calculating answers mentally. When asked to estimate, give an approximate but carefully thought-out answer.
To mentally calculate, look for numbers that are easy to work with.

To estimate 2530 ÷ 7, work with numbers that are easy to calculate mentally.
2100 ÷ 7 = 300 Low estimate.
2800 ÷ 7 = 400 High estimate.
The answer to 2530 ÷ 7 is between 300 and 400.

7 divides evenly into both 2100 and 2800.

To mentally calculate 98 + 59, look for numbers that are easy to work with.
98 + 59 = 100 + 57
= 157

Add 2 to 98 to make 100.
Subtract that 2 from 59.
59 − 2 = 57.

4. Calculate each answer mentally. Show your thinking.

a) 97 + 49

b) 99 × 5

Order of Operations With Whole Numbers

Mathematicians use a set order of operations when calculating number expressions.

Step 1: Do operations in brackets.	( )
Step 2: Multiply and divide in order from left to right.	×, ÷
Step 3: Add and subtract in order from left to right.	+, −

5 × 5 + 20 ÷ (5 − 3) − 3 × 2	Brackets.
= 5 × 5 + 20 ÷ 2 − 3 × 2	Multiply and divide in order.
= 25 + 10 − 6	Add and subtract in order.
= 35 − 6	
= 29	

5. Calculate 83 × 7 + 234 ÷ 6. Show your steps.

6. Evaluate without using a calculator.

a) 14 + 3 × 8 + 5 × 6

b) 3 × 5 + 16 ÷ 4 − 12 ÷ 3

7. Calculate the value of each expression.

a) (21 − 12) × 9 + 8

b) (34 − 6) ÷ 7 × 3

Name: _____ Date: _____

2.1 Add and Subtract Decimal Numbers

***MathLinks 7*, pages 48–55**

Key Ideas Review

Write the word or number from column B that matches each description in column A.

A	B
1. One tenth _____	**a)** Estimate
2. An estimate that is smaller than the actual answer _____	**b)** Overestimate
3. Can be a place holder _____	**c)** Underestimate
4. Ten hundredths _____	**d)** Front-end estimation
5. An estimate that is larger than the actual answer _____	**e)** Relative size estimation
6. An estimate in which only the leading digit stays _____	**f)** 0
7. An estimate in which the leading digit may be increased by one _____	**g)** 0.1
	h) 0.10
	i) 0.100

Practise and Apply

8. Without calculating the answer, place the decimal point in the correct position. Show the estimate that helped you place the decimal point.

a) 35.27 + 61.84 = 9711

_____ + _____ = _____

b) 81 + 14.074 + 201.897 = 296971

_____ + _____ + _____ = _____

c) 15.22 + 7.06 + 0.45 = 2273

_____ + _____ + _____ = _____

d) 156.08 + 522 + 909.5 = 158758

_____ + _____ + _____ = _____

e) 782.56 − 258.76 = 5238

_____ − _____ = _____

f) 268.7 cm − 58.22 cm = 21048 cm

_____ − _____ = _____

Name: _____ **Date:** _____

9. Calculate.

a) $\begin{array}{r} 75.2 \\ +\ 6.5 \\ \hline \end{array}$

b) $\begin{array}{r} 68.54 \\ 6.43 \\ +\ 55.08 \\ \hline \end{array}$

c) $\begin{array}{r} \$513.69 \\ \$49.06 \\ +\ \$40.00 \\ \hline \end{array}$

d) $\begin{array}{r} \$912.99 \\ -\ \$618.00 \\ \hline \end{array}$

e) $\begin{array}{r} 92.00\ \text{m} \\ -\ 8.76\ \text{m} \\ \hline \end{array}$

f) $\begin{array}{r} 5.612\ \text{cm} \\ -\ 1.008\ \text{cm} \\ \hline \end{array}$

10. Put the correct number in the box to make each of the following statements true. Show your thinking.

a) $\begin{array}{r} 45.47 \\ +\ \square \\ \hline 71.09 \end{array}$

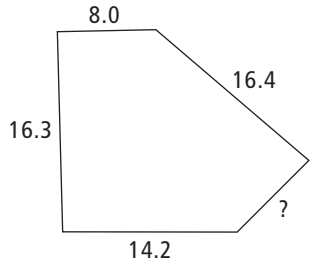
b) $\begin{array}{r} 836.05\ \text{m} \\ +\ \square \\ \hline 988.66\ \text{m} \end{array}$

c) $\begin{array}{r} 5.812 \\ -\ \square \\ \hline 3.112 \end{array}$

d) $\begin{array}{r} \$405.12 \\ -\ \square \\ \hline \$85.15 \end{array}$

11. Ryan says that $1.5 + 2.20 = 1.05 + 2.20$, since 0 is always a placeholder. Do you agree? Explain.

12. The perimeter of the pentagon is 63.1 cm. What is the length of the side without a measurement label?



P = 63.1 cm

13. Oden purchased three snacks for $1.99, $2.35, and $0.65, including tax. He has $5.00 to pay the bill. Without finding the total, decide whether or not Oden has enough money. Show how you know.

14. Parcel A is heavier than parcel B by 2.5 kg. Parcel C is lighter than parcel B by 4.86 kg. How heavy is parcel A if parcel C is 6.2 kg?

Name: _____ Date: _____

2.2 Multiply Decimal Numbers

***MathLinks 7*, pages 56–63**

Key Ideas Review

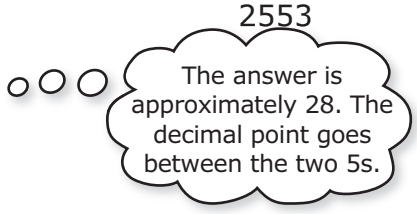
1. Order from 1 to 3 the steps for multiplying decimals.

_____ Multiply the whole numbers.

Multiply 3.7×6.9

$$\begin{array}{r} 37 \\ \times\ 69 \\ \hline 333 \\ 222 \\ \hline 2553 \end{array}$$

_____ Place the decimal point.



_____ Estimate the product. 3.7 is close to 4. 6.9 is close to 7. $4 \times 7 = 28$

2. Label the following as A or B.

A = overestimate
B = underestimate

a) $\$2.77 \times 6 = \$18.00$ _____

b) $3.32 \times 5 = 15$ _____

c) $4.66 \times 4 = 16$ _____

Practise and Apply

3. Without calculating the answer, place the decimal point in the correct position. Show the estimate that helped you place the decimal point.

a) $4.5 \times 3.2 = 1440$

_____ × _____ = _____

b) $3.89 \times 8.21 = 319369$

_____ × _____ = _____

c) $52.7 \times 0.8 = 4216$

_____ × _____ = _____

d) $451.7 \times 0.63 = 284571$

_____ × _____ = _____

e) $92.3 \times 6.1 = 56303$

_____ × _____ = _____

f) $523.6 \times 0.81 = 424116$

_____ × _____ = _____

Name: _____ **Date:** _____

4. Estimate and then calculate.

a) $\begin{array}{r} 2.6 \\ \times\ \ 5 \\ \hline \end{array}$ Estimate: _____

b) $\begin{array}{r} 41.2 \\ \times\ 0.3 \\ \hline \end{array}$ Estimate: _____

c) $\begin{array}{r} 5.2 \\ \times 3.6 \\ \hline \end{array}$ Estimate: _____

d) $\begin{array}{r} 83.1 \\ \times\ 0.6 \\ \hline \end{array}$ Estimate: _____

e) $\begin{array}{r} \$525 \\ \times\ \ 0.5 \\ \hline \end{array}$ Estimate: _____

f) $\begin{array}{r} 61 \\ \times 7.2 \\ \hline \end{array}$ Estimate: _____

5. $37.50 \times 207 = 7762.50$. Use what you know about place values to find each of the following products without multiplying.

a) $3.750 \times 207 =$ _____

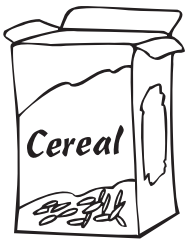
b) $37.50 \times 20.7 =$ _____

c) $0.3750 \times 2.07 =$ _____

d) $37.50 \times 0.207 =$ _____

6. How many times larger is 0.1 than 0.001? Explain your reasoning.

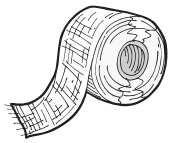
7. What is the cost of each purchase before tax? Show your calculations.



a) 3 boxes of cereal @ $4.35 each

b) 3 telephones @ $19.89 each

c) 12 rolls of duct tape @ $3.66 each



8. Jennifer is a waitress in a restaurant. She is paid $8.35 per hour. Last week she worked three hours on Monday, five hours on Tuesday, four hours on Thursday, and six hours on Friday.

a) How many hours did Jennifer work last week?

b) How much did she earn last week? Show your work.

9. Without calculating the answer, circle the larger value. Explain your thinking.

a) 2.1×0.8 or 2.1×0.9

b) 0.9×0.9 or 1

c) $5.6 + 5.6$ or 1.9×5.6

Name: _____ Date: _____

2.3 Divide Decimal Numbers

***MathLinks 7*, pages 64–71**

Key Ideas Review

Match the method of estimating the answer to a division problem with the examples. Write the method from column B that matches each example in column A.

A	B
1. Estimate 6.6 ÷ 2.3 6 ÷ 2 = 3 _____	**a)** Number line estimation
2.  Estimate 6.6 ÷ 2.3 6 ÷ 2 = 3 underestimate 8 ÷ 2 = 4 overestimate _____	**b)** Estimate, then use a calculator
3. [C] 25.73 [÷] 3.1 [=] 8.3 _____ _____ 24 ÷ 3 = 8 27 ÷ 3 = 9 The estimates suggest an answer between 8 and 9. The answer 8.3 is reasonable.	**c)** Divide as whole numbers, then estimate to place the decimal
4. Divide 20.4 ÷ 3. $3\overline{)204}$ → 68 180 ← 3 × 60 24 24 ← 3 × 8 0 21 ÷ 3 = 7 The answer is around 7. The decimal point goes between the 6 and 8. _____	**d)** Relative size estimation **e)** Front-end estimation **f)** Model the equation

Practise and Apply

5. Without calculating the answer, place the decimal point in the correct position. Show the estimate that helped you place the decimal point.

a) 82.4 ÷ 20 = 412

_____ ÷ _____ = _____

b) 3.12 ÷ 0.6 = 52

_____ ÷ _____ = _____

c) 2.132 ÷ 0.4 = 533

_____ ÷ _____ = _____

d) 27 ÷ 0.45 = 600

_____ ÷ _____ = _____

e) 4.026 ÷ 0.6 = 671

_____ ÷ _____ = _____

f) 33.12 ÷ 6.9 = 48

_____ ÷ _____ = _____

Name: _____ **Date:** _____

6. Estimate each answer and show your thinking. Then, use a calculator to determine each answer.

a) 5.24 ÷ 0.5 = _____

Estimate: _____

b) 68.22 ÷ 0.6 = _____

Estimate: _____

c) 2.142 ÷ 0.07 = _____

Estimate: _____

d) 111.6 ÷ 4 = _____

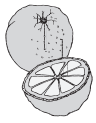
Estimate: _____

7. What is the cost of each purchase before tax? Show your calculations.

a) 3 oatmeal bars for $7.50

b) 5 cans of tuna for $5.30

c) 6 lemons for $2.99



8. George has $10.50 to spend on energy bars. How many can he buy if they cost $0.70 each, including tax?

9. Carmen earns $8.30 per hour. She wants to buy a jacket that costs $124.50. How many hours will she have to work to have enough money to buy the jacket? Estimate, then use a calculator to determine the answer.

10. Without calculating the answer, circle the larger value. Explain your thinking.

a) 7.8 ÷ 0.98 or 7.8 ÷ 1

b) 16 ÷ 0.5 or 25

c) 1500 or 2 ÷ 0.001

d) 9.3 ÷ 1.02 or 9.3

e) 536 ÷ 0.72 or 536 ÷ 0.68

Name: _____ Date: _____

2.4 Order of Operations and Decimal Numbers

***MathLinks 7*, pages 72–77**

Key Ideas Review

1. a) Find the words in the puzzle.

ADD
SUBTRACT
BRACKETS
MULTIPLY
DIVIDE

Q	U	S	A	A	D	L	B	M
A	M	U	L	T	I	P	L	Y
B	R	A	C	K	V	R	T	L
O	R	D	E	R	I	O	C	P
D	R	A	O	R	D	E	A	A
A	E	P	C	S	E	D	R	L
S	R	A	C	K	E	T	T	E
A	D	D	E	K	E	R	B	M
C	O	R	D	A	D	T	U	R
T	C	A	R	T	B	U	S	M

b) Order the words from #1a) in the correct order of operations.

STEP 1: _____

STEP 2: _____ and _____ in order

STEP 3: _____ and _____ in order

2. Put brackets in the following expressions to get the largest values possible.

a) $5 + 6 \div 3 \times 2$

b) $5 + 4 \times 4 \div 2$

c) $9 + 3 \div 6 + 5$

d) $18 + 3 - 3 \times 5$

Practise and Apply

3. Place the two operations shown in square brackets to make each statement true.

a) 8 __ 3.1 __ 4 = 20.4 [+, ×]

b) 16 __ 8 + 9.3 __ 7.8 = 3.5 [−, ÷]

c) (6.1 __ 4.3) __ 4 = 7.2 [−, ×]

d) (15.4 __ 3.6) __ 4 = 4.75 [+, ÷]

4. Place brackets to make each statement true.

a) $7 + 5 \times 3.2 = 23$

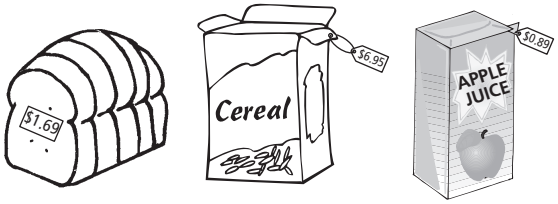
b) $10.6 + 4.4 - 8.1 - 3.1 = 10$

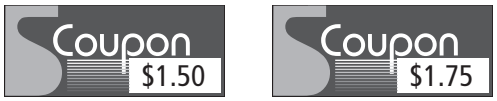
c) $16 \div 4 + 5 - 1 = 8$

d) $15.5 - 6.5 \times 3 = 27$

Name: _____ **Date:** _____

5. Mr. Lang needed to pick up a few groceries. He bought two boxes of cereal at $6.95 each, three loaves of bread at $1.69 each, and four litres of apple juice at $0.89 a litre. He had two grocery coupons: one for $1.50 and the other $1.75.





a) Estimate the total cost of the groceries. There is no tax on food. Is your estimate high or low? Explain how you know.

b) Estimate the total cost of the groceries if Mr. Lang uses both coupons.

c) Calculate the total cost of groceries if Mr. Lang uses both coupons.

6. Luke plays the saxophone. One week he practised for the following amounts of time.

Day	Hours Practised
Monday	1.2 h
Wednesday	2.1 h
Friday	1.6 h
Sunday	2.8 h

a) Estimate the average number of hours Luke practised per day.

b) Calculate the total number of hours Luke practised per week.

c) If Luke practised the same number of hours for five weeks in a row, how many hours in total would he have practised?

7. What are the missing numbers? Show how you know.

a) _____ + 3.4 × 26 = 94.6

b) 7 + 6.4 ÷ _____ = 7.8

c) 8 + 5.3 × _____ = 21.25

d) 21 − 2.5 × _____ = 7.5

8. Calculate.

a) 5 × 6.3 = _____

b) 5 × (6 + 0.3) = _____

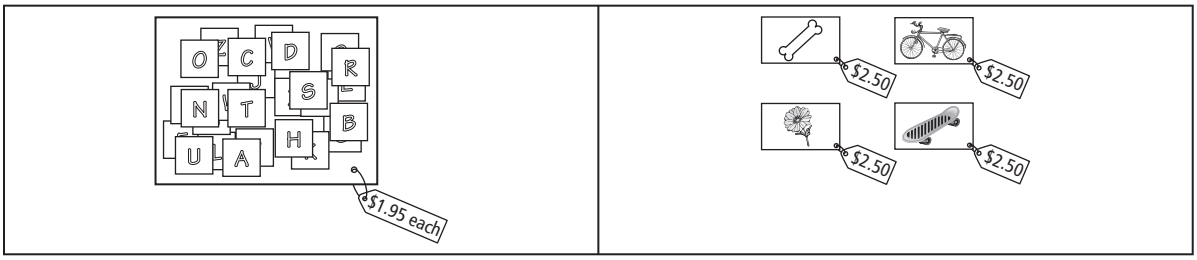
c) 5 × 6 + 5 × 0.3 = _____

d) What do you notice about your answers in parts a–c)? Explain why this is the case.

Name: _____ Date: _____

Link It Together

1. Zach wants to make a pet collar for his dog, Hudson. At the pet store, he finds a collar for $6.95. He also finds letters for $1.95 each and decorations for $2.50 each. The store is having a "no tax" day.



a) How much will it cost to buy a collar with the following design? Show your calculation in two different ways.

b) Zach has $30.00 from his birthday. If he wants the collar to include Hudson's full name plus some decorations, how many decorations can he buy?

c) Design a collar for a dog or cat. How much would this collar cost?

Name: _____ **Date:** _____

Vocabulary Link

Use the clues to identify the key words from Chapter 2. Then, write them in the crossword puzzle blank.

Across

1. This example shows _____: $(5.3 + 2.7) \times 3 = 24$.
2. When you _____, you calculate an approximate answer. The symbol $\approx$ means "is approximately equal to."

Down

1. An estimate that is larger than the actual answer is called a(n) _____. For example, $235 + 376$ is approximately 676.
3. The following example uses _____ estimation.
   $235 + 376 \approx 200 + 300 \approx 500$
4. The following example uses _____ estimation.
   $235 + 376 \approx 200 + 400 \approx 600$
5. An estimate that is smaller than the actual answer is called a(n) _____. For example, $235 + 376$ is approximately 576.