5th GRADE ENRICHMENT MATH

<u>Unit 1</u> <u>Place Value Decimal Numbers</u>

Name

Place Value

Place-value chart:

Billions perio	d Million	s period	Theu	sands	perio		nes p	eriod
	/>/	S. squares	7 > 5%	*	82/	*	/	/ _{20 1} :-
· · · · · · · · · · · · · · · · · · ·		ANDRO HOL	N. C. O.L.	Negative at	S OF THE S	Aron Car	6	a /
		AND ROLL OF THE PARTY OF THE PA		CONTRACTOR OF THE CONTRACTOR O	Sellid?		<u></u>	
6, 3	9 2	, 5	8	0,	THE STATE OF THE S	0	1	<u> </u>

Expanded form: 6,000,000,000 + 300,000,000 + 90,000,000 +

2,000,000 + 500,000 + 80,000 + 100 + 1

Standard form: 6,392,580,101

Word form: six billion, three hundred ninety-two million,

five hundred eighty thousand, one hundred one

Write the word name for each number and tell the value of the underlined digit.

1. 3,5<u>5</u>2,308,725

2. 843,208,732,833

3. Write 2,000,000,000 + 70,000,000 + 100,000 + 70,000 + 3,000 + 800 + 10 in standard form.

4. What number is 100,000,000 more than 5,438,724,022?

Place Value

Write the word form for each number and tell the value of the underlined digit.



- 1. 34,23<u>5</u>,345
- **2**, 1<u>9</u>,673,890,004
- 3. Write 2,430,090 in expanded form.

Write each number in standard form.

- 4.80,000,000 + 4,000,000 + 100 + 8
- 5. twenty-nine billion, thirty-two-million
- 6. What number is 10,000 less than 337,676?
- 7. Which number is 164,502,423 decreased by 100,000?
- A 164,402,423
- **B** 164,501,423
- C 164,512,423
- D 264,502,423

8. Write 423,090,709,000 in word form.

Thousandths

Example 1: Write 0.025 as a fraction.

0 0 2 5	

You can use a place-value chart to write a decimal as a fraction.

Look at the place-value chart above. The place farthest to the right that contains a digit tells you the denominator of the fraction.

In this case, it is thousandths. The number written in the place-value chart tells you the numerator of the fraction. Here, it is 25.

$$0.025 = \frac{25}{1,000}$$

Example 2: Write $\frac{11}{1,000}$ as a decimal.

Ones	 Tenths	Hundredths	==Thousandths
			To the state of th

You can also use a place-value chart to write a fraction as a decimal. The denominator tells you the last-decimal place in your number. Here, it is thousandths. The numerator tells you the decimal itself. Write a 1 in the hundredths place and a 1 in the thousandths place. Fill in the other places with a 0.

$$\frac{-11}{1,000} = 0.011$$

Write each decimal as a fraction.

1. 0.002

2. 0.037

3. 0.099

Write each fraction as a decimal.

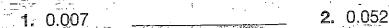
- 4. $\frac{5}{1,000}$ ——
- **5.** $\frac{76}{1,000}$

6. $\frac{40}{1,000}$

7. Matt reasoned that he can write $\frac{9}{1,000}$ as 0.9. Is he correct? Explain your answer.

Thousandths

Write each decimal as either a fraction or a mixed number.



Write each fraction as a decimal.

7.
$$\frac{73}{1,000}$$
 8. $\frac{593}{1,000}$

9.
$$\frac{854}{1,000}$$
 10. $\frac{-11}{1,000}$

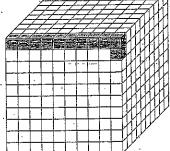
1.
$$\frac{5}{1,000}$$
 12. $\frac{996}{1,00}$

Write the numbers in order from least to greatest.

$$\frac{5}{13. \cdot \frac{5}{1,000}}$$
, 0.003, $\frac{9}{1,000}$

14. 0.021, 0.845,
$$\frac{99}{1,000}$$

15. Look at the model at the right. Write a fraction and a decimal that the model represents.



- 16. In Tasha's school, 0.600 of the students participate in a school sport. If there are one thousand students in Tasha's school, how many participate in a school sport?
 - A 6,000
- B 600
- C 60
- **D** 6
- 17. Explain how knowing that $5 \div 8 = 0.625$ helps you write the decimal for $4\frac{5}{8}$

Write each number as indicated. Use the place value chart to help you.



hundreds.	tens.	ones		tenths	hundredths	thousandths
			ب د کیا گرید در و کار	омносять, жи	segge has a hour of processing and	J. (1888)

one hundred three and nine-tenth	าร
----------------------------------	----

standard form:

forty and five hundred sixty-seven thousandths

standard form:

two and thirteen-hundredths

-standard form: _____

18.06

written form: _____

10.13

written form:

140.5

expanded form: _____

Circle the decimal that shows thousandths.

Blank - Workspace

Decimal Place Value

Here are different ways to represent 2.753.

Place-value chart:

51°.	Ones	"Tenths.	Hundredths	Thousandths
	2	7	5	3

Expanded Form:

$$2 + 0.7 + 0.05 + 0.003$$

Standard form: 2.753

Word Form: Two and seven hundred fifty-three thousandths

Complete the place-value chart for the following number. Write its word form and tell the value of the underlined digit.

1. 6.3<u>2</u>4

Ones		Tenths	Hundredths	Thousandths		
		-	3 -			

Write each number in standard form.

2.
$$5 + 0.1 + 0.03 + 0.006$$

3. Two and seven hundred twenty-four thousandths

Decimal Place Value

Write the word form of each number and tell the value of the underlined digit.





Write each number in standard form.

4.
$$8 + \overline{0.0} + 0.05 + 0.009$$

$$5.1 + 0.9 + 0.08 + 0.001$$

Write two decimals that are equivalent to the given decimal.

- 9. The longest stem on Eli's geranium plant is 7.24 inches. Write 7.24 in word form.
- 10. The number 4.124 has two 4s. Why does each 4 have a different

		Date
Name	•	Date
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- 1. Express-as <u>decimal</u> numerals. The first-one is done for you. -----

a.	Four thousandths	. 0.004	
b.	Twenty-four thousandths		
c.	One and three hundred twenty-four thousandths		_ ,
d.	Six hundred eight thousandths		
e.	Six hundred and eight thousandths		
f.	46 1000		. *
g.	3 <u>946</u> 1000		
h.	200 904		

- 2. Express each of the following values in words.
 - a. 0.005
 - b. 11.03-7
 - c. 403.608
- Write the number on a place value chart. Then, write it in expanded form using fractions or decimals to express the decimal place value units. The first one is done for you.
 - a. 35.827

[Tens	Ones		Tenths	Hundredths	Thousandths
١	1 0.10		_			
Ì	3	5		8	2	7
- 1	_					£

$$35.827 = 3 \times 10 + 5 \times 1 + 8 \times \left(\frac{1}{10}\right) + 2 \times \left(\frac{1}{100}\right) + 7 \times \left(\frac{1}{1000}\right) \quad or$$
$$= 3 \times 10 + 5 \times 1 + 8 \times 0.1 + 2 \times 0.01 + 7 \times 0.001$$



Draw a quick place value chart, then write in expanded form.



b. 0.249

4. Write a decimal for each of the following. Use a place value chart to help, if necessary.

a.
$$7 \times 10 + 4 \times 1 + 6 \times \left(\frac{1}{10}\right) + 9 \times \left(\frac{1}{100}\right) + 2 \times \left(\frac{1}{1000}\right) =$$

c.
$$4 \times 1,000 + 2 \times 100 + 7 \times 1 + 3 \times \left(\frac{1}{100}\right) + 4 \times \left(\frac{1}{1000}\right) =$$

5. Mr. Pham wrote 2.619 on the board. Christy says it is two and six hundred nineteen thousandths. Amy says it is 2 ones 6 tenths 1 hundredth 9 thousandths. Who is right? Use words and numbers to explain your answer.

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Name	•	Date	
Name		. –	

1:-Express as decimal numerals. The first one is done for you.

a.	Five thousandths	0.005
b.	: Thirty-five thousandths	
c.	Nine and two hundred thirty-five thousandths	in the second of
d.	Eight hundred and five thousandths	
e.	8 1000	
·f.	28 1000	· ·
g.	7 528 1000	,
h.	300 \frac{502}{1000}	

- 2. Express each of the following values in words
- a. 0.008
 - b. 15,062
 - c.__ 607.409
- 3. Write the number on a place value chart. Then, write it in expanded form using fractions or decimals to express the decimal place value units. The first one is done for you.
 - a. 27.346

 Tens	Ones	A	Tenths	Hundredths	Thousandths
2	7	- 13	3	4	6

$$27.346 = 2 \times 10 + 7 \times 1 + 3 \times \left(\frac{1}{10}\right) + 4 \times \left(\frac{1}{100}\right) + 6 \times \left(\frac{1}{1000}\right) \text{ or}$$

$$27.346 = 2 \times 10 + 7 \times 1 + 3 \times 0.1 + 4 \times 0.01 + 6 \times 0.001$$



b. 0.362

c. 49.564

4. Write a decimal for each of the following. Use a place value chart to help, if necessary.

a.
$$3 \times 10 + 5 \times 1 + 2 \times \left(\frac{1}{10}\right) + 7 \times \left(\frac{1}{100}\right) + 6 \times \left(\frac{1}{1000}\right)$$

b. $9 \times 100 + 2 \times 10 + 3 \times 0.1 + 7 \times 0.001$

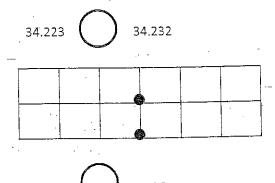
c.
$$5 \times 1000 + 4 \times 100 + 8 \times 1 + 6 \times \left(\frac{1}{100}\right) + 5 \times \left(\frac{1}{1000}\right)$$

- At the beginning of a lesson, a piece of chalk is 4.875 inches long. At the end of the lesson, it is 3.125
 inches long. Write the two amounts in expanded form using fractions.
 - a. At the beginning of the lesson:
 - b. At the end of the lesson:
- 6. Mrs. Herman asked the class to write an expanded form for 412.638. Nancy wrote the expanded form using fractions, and Charles wrote the expanded form using decimals. Write their responses.

			•	
Name				

Date ______

1. Show the numbers on the place value chart using digits. Use >; <, or = to compare. Explain your thinking in the space to the right.



- -2. Use >, <, or = to compare the following. Use a place value chart to help, if necessary.

a.	16.3	16.4
b.	. 0.83	83
c.	205 1000	0.205
d.	95.580	95.58
e.	9.1	9.099
f.	8.3	83 tenths
g.	5.8	Fifty-eight hundredths



h.	Thirty-six and nine thousa	ndths .)	4 tens,
i.	202 hundredths)	2 hundreds and 2 thousandths
j.	One hundred fifty-eight thousandths)	158,000
k.	4.15);	415 tenths

- 3. Arrange the numbers in increasing order.
 - a. 3.049 3.059 3.05 3.04
 - b. 182.205 182.05 182.105 182.025

- 4. Arrange the numbers in decreasing order.
 - -a. -7.608 7,68 7.6 7.068
 - b. 439,216 439,126 439,612 439,261



Lesson 6:

Compare decimal fractions to the thousandths using like units, and express comparisons with >, <, =.



5. Lance measured 0.485 liter of water. Angel measured 0.5 liter of water. Lance said, "My beaker has more water than yours because my number has three decimal places and yours only has one." Is Lance correct? Use words and numbers to explain your answer.

6. Dr. Hong prescribed 0.019 liter more medicine than Dr. Tannenbaum. Dr. Evans prescribed 0.02 less than Dr. Hong. Who prescribed the most medicine? Who prescribed the least?



Lesson 6:

Compare decimal fractions to the thousandths using like units, and express comparisons with >, <, =.



ne	·	Date
Use >, <, or = to compare the following.		gan an agant of the date of a
a. 16.45		16.454
b. 0.83		83
C. 205	0	0.205
d. 95.045	0	95.545
e. 419.10		419.099
f. Five ones and eight tenths		Fifty-eight tenths
g. Thirty-six and nine thousandths		Four tens
h. One hundred four and twelve hundredths	0	One hundred four and two thousandths
i. One hundred fifty-eight thousandths	0	0.58
j. 703.005		Seven hundred three and five hundredths
Arrange the numbers in increasing order.	-	†
a. 8.08 8.081 8.09 8.008	••	
<u>, , , , , , , , , , , , , , , , , , , </u>	· .	



Lesson 6:

Compare decimal fractions to the thousandths using like units, and express comparisons with >, <, =.



- 3. Arrange the numbers in decreasing order.
 - 8,508--- 8,58-- 7,5 7.058
 - 439,612 439.261 b. 439.216 439.126
- 4. James measured his hand. It was 0.17 meter. Jennifer measured her hand. It was 0.165 meter. Whose hand is bigger? How do you know?

5. In a paper airplane contest, Marcel's plane travels 3.345 meters. Salvador's plane travels 3.35 meters. Jennifer's plane travels 3.3 meters. Based on the measurements, whose plane traveled the farthest distance? Whose plane traveled the shortest distance? Explain your reasoning using a place value chart.



Lesson 6:

Compare decimal fractions to the thousandths using like units, and express comparisons with >, <, =.

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Comparing and Ordering Decimals



List the numbers in order from least to greatest:

6.943, 5.229, 6.825, 6:852, 6:779

Step 1: Write the numbers, lining up places. Begin at the left to find the greatest or least number.

•			
6.943		•	٠
5.229		. :	
6.825			
6.852			
6.779	•		
		,	

5.229 is the least

Step 2: Write the remaining numbers, lining up places. Find the greatest and least. Order the other numbers.

6.943		greatest	٠.	•
6.825				6.825
6.852_			-	6.852
6.779	-	least	٠	

6.943 is the greatest.
6.852 is greater than 6.825.

6.779 is the least.

Step 3: Write the numbers from least to greatest.

	5.229
. —— :	6.779
	6.825
	-6.852
	6.943

Complete. Write >, <, or = for each

1. 7.539 7.344 2. 9.202 9.209

3. 0.75 0.750

Order these numbers from least to greatest.

4. 3.898 3.827 3.779

5. 5.234 5.199 5.002 5.243

Which had the faster speed?

_6._Driver A or Driver D

7. Driver C or Driver A

Car Racing Winners

Driver	Average Speed (mph)
Driver A	145.155
Driver B	145.827
Driver C	147.956
Driver D	144.809

Name.

Practice.

Comparing and Ordering Decimals



Write >, <, or = for each (

- 5.343 1. 5.424 (
- 2. 0.33 () 0.330
- 3, 9,489

- 4. 21.012 ()21.01
-) 223.199 🕺 5. 223.21
- 5.432 **6.** 5.43 (

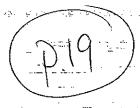
Order these numbers from least to greatest.

- 7. 8.37, 8.3, 8.219, 8.129
- 8. 0.012, 0.100, 0.001, 0.101
- 9. Name three numbers between 0.33 and 0.34.
- 10. Which runner came in first place?

Runner	Time (minutes)		
Amanda	8.016		
Calvin	7.049		
Liz	7.03		
Steve	8.16		

- 11. Who ran faster, Amanda or Steve?
- 12. Who ran for the longest time?
- Which number is less than 28.43?
 - A 28.435
- **B** 28.34
- C 28.430
- Explain why it is not reasonable to say that 4.23 is less than 4.13.

nd to the nearest whole number. Use the number line to help.



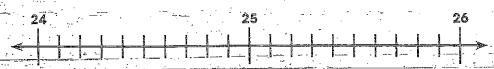
4.8 rounds to _____



36.6 rounds to ___



25.3 rounds to _



4.1 rounds to =



3.5 rounds to 1



38:9 rounds to _____



Tell how to use a number line to round decimals to the nearest whole number.



Round each number to the nearest tenth. Use the number line to help.



8.54 rounds to _

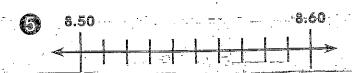
19.08 rounds to _



61.80

5.27 rounds to ___

61.85 rounds to _





8.56 rounds to \perp



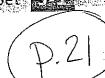
15.06 rounds_to_

20.372 rounds to -





how to use place value to round to the nearest tenth.



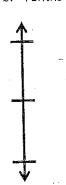
Name _____

ate_____

Fill in the table, and then round to the given place. Label the number-lines to show your work. Circle the rounded number.

- 1. 3.1
 - a. Hundredths
- b. Tenths
- c. Tens







Ones	Tenths	Hundredths	Thousandth:
	•		
			*
,			
			,
	Ones	Ones Tenths	Ones Tenths Hundredths

- 2 115 376
 - a. Hundredths.
- b. Ones
- c. Tens







Tens	Ones	Tenths-	Hundredths	Thousandths
	<u> </u>		<u> </u>	

301

3. 0.994

Ones	Tenths	Hundredths	Thousandths
. :. =	Integrated V Charles		and the state of t
.,	· ',		
		.	

ل ل

a. Hundredths

†

b. Tenths



c. Ones



d. Tens



4.2-For open international competition, the throwing circle in the men's shot put must have a diameter of 2.135 meters. Round this number to the nearest hundredth. Use a number line to show your work.

Jen's pedometer said she walked 2.549 miles. She rounded her distance to 3 miles. Her brother rounded her distance to 2.5 miles. When they argued about it, their mom said they were both right. Explain how that could be true. Use number lines and words to explain your reasoning.

Lesson 7:

Round a given decimal to any place using place value understanding and the vertical number line.

dama			

Date _____

Fill in the table, and then round to the given place. Label the number lines to show your work. Circle the rounded number.

- 1. 4.3
 - a. Hundredths
- b. Tenths
- c. Ones







Tens	Ones	Tenths	Hundredths	Thousandths

- 2. 225.286
 - a. Hundredths

b. On



Tens	Ones		Hundredths	Thousandths
		9		., ,
	; 		1	
				
		,		*
	ļ			, , ,
	:	· ·		

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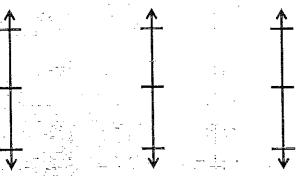
3. 8.984

Tens	Ones	Tenths	Hundredths	Thousandths
	<u> </u>			

- a. Hundredths -

b. Tenths

- c. Ones
- d. Tens



- 4. On a Major League Baseball diamond, the distance from the pitcher's mound to home plate is 18.386 meters.
 - a. Round this number to the nearest hundredth of a meter. Use a number line to show your work.
 - b. How many centimeters is it from the pitcher's mound to home plate?
- 5. Jules reads that 1 pint is equivalent to 0.473 liters. He asks his teacher how many liters there are in a pint. His teacher responds that there are about 0.47 liters in a pint. He asks his parents, and they say there are about 0.5 liters in a pint. Jules says they are both correct. How can that be true? Explain your answer.

A STORY OF UNITS

Lesson 8 Problem Set

The second second
(075)
1 Pilot

		P.W)
Name	 Date	

 $ho_{
m c}$ explain your thinking. Circle the rounded value on each number line.

a. Round 32.697 to the nearest tenth, hundredth, and one.

b. Round 141.999 to the nearest tenth, hundredth, ten, and hundred.

Challenge

2. A root beer factory produces 132,554 cases in 100 days. About how many cases does the factory produce in 1 day? Round your answer to the nearest tenth of a case.



Lesson 8:

Round a given decimal to any place using place value understanding and the vertical number line.

- P.26
- 3. A decimal number has two digits to the right of its decimal point. If we round it to the nearest tenth, the result is 13.7.
 - a. What is the maximum possible value of this number? Use words and the number line to explain your reasoning. Include the midpoint on your number line.



b. What is the minimum possible value of this decimal? Use words and the number line to explain your reasoning_include the midpoint on your number line.



A STORY OF UNITS

Lesson 8 Homework



Jamo		-

Round to the given place value. Draw number lines to explain your thinking. Circle the rounded value on each number line.

a. 43.586 to the nearest tenth, hundredth, and one.

b. 243.875 to nearest tenth, hundredth, ten, and hundred.

Challenge:
 A trip from New York City to Seattle is 2,852.1 miles. A family wants to make the drive in 10 days, driving the same number of miles each day. About how many miles will they drive each day? Round your answer to the nearest tenth of a mile.

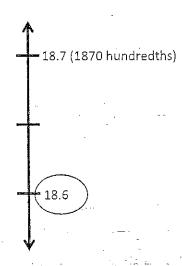


Lesson 8:

Round a given decimal to any place using place value understanding and the vertical number line.



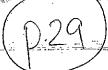
- 3. A decimal number has two digits to the right of its decimal point. If we round it to the nearest tenth, the result is 18.6.
 - a. What is the maximum possible value of this number? Use words and the number line to explain your reasoning. Include the midpoint on your number line.



b. What is the minimum possible value of this decimal? Use words, pictures, or numbers to explain your reasoning.



ad each number to the nearest hundredth. Use the number line to help.



3,459 rounds to __

0.295 rounds to ___

40.261 rounds to _

61.895 rounds to

8.533 rounds to _

81.406 rounds to _

7.602 rounds to _

0.885 rounds to ___

0.967 rounds to _

1.094 rounds to ____

1.059 rounds to ______

4.509 rounds to

ounding to the nearest hundredth is like rounding to the nearest tenth.

Solve.

- What is 31.75 rounded to the pearest tenth?
- What is 1.49 rounded to the neares tenth?

- What is 20.06 rounded to the nearest tenth?
- What is 98.044 rounded to the nearest hundredth?

- What is 5.197 rounded to the nearest tenth?
- What is 76.975 rounded to the nearest hundredth?

Circle the letter for the correct answer.

- If you were rounding 36,842 to the nearest tenth, which digit would you use to round the decimal?
- appropriate to the state of the

b) 4

b) 8

c) 6

c) 6

d) 8

d) 0

3 If you rounded 0.587 to the nearest

the hundredths place?

hundredth, what digit would be in

A STORY OF UNIT

Lesson 2 Homework

(p.31

Name ______

Date _____

12 Solve.

2. Find the products.

Explain how you decided on the number of zeros in the products for (a), (b), and (c).



- 3. Find the quotients.
 - a. 16.5 ÷ 10 =
 - b. 16.5 ÷ 100 = _____
 - c. Explain how you decided where to place the decimal in the quotients for (a) and (b).

4. Ted says that 3 tenths multiplied by 100 equals 300 thousandths. Is he correct? Use a place value chart to explain your answer.

5. Alaska has a land area of about 1,700,000 square kilometers. Florida has a land area $\frac{1}{10}$ the size of Alaska. What is the land area of Florida? Explain how you found your answer.



Date

Write-the-following in exponential form (e.g., $100 = 10^2$).

2. Write the following in standard form (e.g., $4 \times 10^2 = 400$).

a.
$$4 \times 10^3 =$$

e.
$$6.072 \times 10^3 =$$

b.
$$64 \times 10^4 =$$

$$f_{i} = 60.72 \times 10^4 =$$

c.
$$5,300 \div 10^2 =$$

d.
$$5,300,000 \div 10^3 =$$

3. Complete the patterns.

95,000





4. After a lesson on exponents, Tia went home and said to her mom, "I learned that 10⁴ is the same as 40,000." She has made a mistake in her thinking. Use words, numbers, or a place value chart to help Tia correct her mistake.

- 5. Solve $247 \div 10^2$ and 247×10^2 .
 - a. What is different about the two answers? Use words, numbers, or pictures to explain how the digits shift.

b. Based on the answers from the pair of expressions above, solve 247 \div 10³ and 247 \times 10³



ne____

Unit 5 - Powers of 10



943 x 10 = ____

63 ÷ 10 = ____

$$63 \div 10^3 =$$

$$5.433 \div 10^2 =$$

$$5,433 \div 10^3 =$$

 $432 \div 10^2 =$

0,285 x 10³ = _____

$$-27 \div 10^3 =$$

251 ÷ 10 = ____

 $745,000 \div 10^3 =$

$$278 \div 10^2 =$$

 $21.9 \div 10^3 =$

$$97,004 \div 10^3 = ____$$

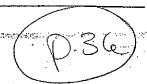
3 80.1 × 10³ = ___

$$6$$
 509.4 ÷ $10^3 =$ _____

 $650 \div 10^3 =$

$$3.775 \times 10^4 =$$

Describe the pattern of zeros in the quotient when dividing by powers of 10.



Solve. Use patterns to help you.

April 2 To the second

- What is the product of 3.39 and 10²?
- What is the product of 542 and 10?

- What is the product of 1.097 and 1022
- What is the product of 200 and 10²?

- What is the quotient of 2,093 divided by 103?
- What is the quotient of 70,098 divided by 10²?

Circle the letter for the correct answer.

- Which power of 10 multiplied by 7.8 is equal to 780?
- What number when divided by 10² yields a quotient of 0.1?

- a) 10
- **b)** 10²
- **c)** 10³
- d) 1,000-...

- **a)** 1,000
- **b)** 100
- **c)** 10
- -d).1.0____