

# Grade 5 Unit 3

## Multiplying and Dividing with Decimals

Volume 1 Issue 3

### References

#### Math Grade 5 Textbook Connection:

Ch. 6, Lessons 1 – 6,  
Lessons 9 - 14

#### Textbook Online:

<http://connected.mcgraw-hill.com/connected/login.do>

Ask your teacher for the online passcode.

### Dear Parents,

Your student's math class is calling for students to be actively engaged in doing math in order to learn math. In the classroom, students will frequently work on tasks and activities to discover and apply mathematical thinking. Students will be expected to explain or justify their answers and to write clearly and properly. Your students will receive a consumable textbook and online access from their teacher.

### Concepts Students will Use and Understand

- Understand place value
- Use whole number exponents to denote powers of 10
- Compare decimals
- Model multiplication and division of decimals
- Multiply and divide decimals by powers of 10
- Use estimation when multiplying and dividing decimals
- Multiply and divide decimals with fluency
- Determine relationship between quantities algebraically
- Recognize student errors in multiplication and division of decimals
- Use decimals to solve problems

### Vocabulary

**Decimal:** Number with one or more digits to the right of the decimal point

**Tenths:** The value of a number one decimal place to the right of the whole number  $1/10$

**Hundredths:** The value of a number two decimal places to the right of the whole number  $1/100$

**Thousandths:** The value of a number three decimal places to the right of a whole number  $1/1,000$

Try <http://intermath.coe.uga.edu/dictionary/homepg.asp> or

<http://www.amathsdictionaryforkids.com/> for further examples.

### Symbols

+ addition

- subtraction

× multiplication

÷ division

. decimal

### Example 1

$$2.5 \times 10^3 = 2.5 \times (10 \times 10 \times 10) = 2.5 \times 1,000 = 2,500$$

### Example 2

$$350 \div 1,000 = 0.350 = 0.35$$

$$350 /_{10} = 35$$

$$35 /_{10} = 3.5$$

$$3.5 /_{10} = 0.35$$

## Helpful Links:

<https://grade5commoncoremath.wikispaces.com/5.NBT.7>

<http://www.k-5mathteachingresources.com/5th-grade-number-activities.html>

<http://www.estimated180.com/days.html>

<https://www.illustrativemathematics.org/>

## Example 3

$$36 \times 10 = 36 \times 10^1 = 360$$

$$36 \times 10 \times 10 = 36 \times 10^2 = 3600$$

$$36 \times 10 \times 10 \times 10 = 36 \times 10^3 = 36,000$$

$$36 \times 10 \times 10 \times 10 \times 10 = 36 \times 10^4 = 360,000$$

## Example 4

$$523 \times 10^3 = 523,000$$

The place value of 523 is increased by 3 places.

$$5.223 \times 10^2 = 522.3$$

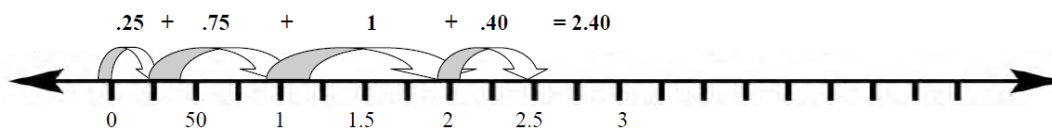
The place value of 5.223 is increased by 2 places.

$$52.3 \div 10^1 = 5.23$$

The place value of 52.3 is decreased by one place.

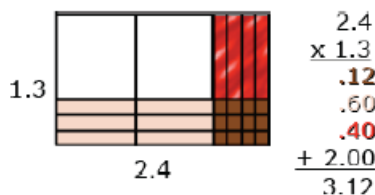
## Example 5

I saw that the 0.25 in the 1.25 cups of milk and the 0.75 cups of water would combine to equal 1 whole cup. That plus the 1 whole in the 1.25 cups of milk gives me 2 whole cups. Then I added the 2 wholes and the 0.40 cups of oil to get 2.40 cups.



## Example 6

An area model can be useful for illustrating products.



Students should be able to describe the partial products displayed by the area model.

For example, " $\frac{3}{10}$  times  $\frac{4}{10}$  is  $\frac{12}{100}$ ."

$\frac{3}{10}$  times 2 is  $\frac{6}{10}$  or  $\frac{60}{100}$ .

1 group of  $\frac{4}{10}$  is  $\frac{4}{10}$  or  $\frac{40}{100}$ .

1 group of 2 is 2."

## Activities at Home:

- Create number cubes or spinners and have the student identify the place value and value of different digits in that number.
- Roll or pick numbers to create decimals. Multiply and divide the decimals.
- Find the batting averages or other statistics in the sports section of a newspaper and add or subtract the statistics.
- Estimate and find the sums and differences of items at the store and in restaurants.
- Practice basic multiplication and division facts.
- Roll or pick numbers to create decimals. Compare and order the numbers.
- Choose a four-digit number. Multiply and divide by powers of 10 (10, 100, 1,000, etc.) by moving the decimal point left or right as appropriate.