



# MATH NEWS

## Grade 5 | Module 1 | Topic D | Adding and Subtracting Decimals

### Welcome

This document is created to give parents and students a better understanding of the math concepts found in the Eureka Math (© 2013 Common Core, Inc.) that is also posted in the Engage New York material taught in the classroom. Grade 5 Module 1 of Eureka Math (Engage New York) covers place value and decimal fractions. In this topic students will use base ten understanding to add and subtract decimal fractions.

### Topic D Objectives

- Add decimals using place value strategies and relate those strategies to a written method
- Subtract decimals using place value strategies and relate those to the written lesson

### Words to Know

*The following are key vocabulary words for this topic*

- Thousandths: One of 1,000 equal parts; thousandths place (in decimal notation) the position of the third digit to the right of the decimal point
- Hundredths: One of the 100 equal parts; hundredths place (in decimal notation) the position of the second digit to the right of the decimal point
- Tenths: One of 10 equal parts; tenths place (in decimal notation) the position of the first digit to the right of the decimal point
- Unit Form: Shows how many of each size unit are in the number **52.64 = 5 tens 2 ones 6 tenths 4 hundredths**  
**52 ones 64 hundredths**
- Decimal Fraction: A fractional number with a denominator of 10 or a power of 10 (10, 100, 1000). It can be written with a decimal point.
- Addend: Any number being added
- Sum: Answer to an addition problem
- Difference: Answer to a subtraction problem

### Focus Area: Topic D

*Adding and Subtracting Decimals on the Place Value Chart*

When adding and subtracting decimals students can use place value charts to assist them with regrouping. When adding, students begin by representing each digit in the numbers by drawing a dot in the correct area on the place value chart. Next, they will regroup when there are 10 or more dots in one place.

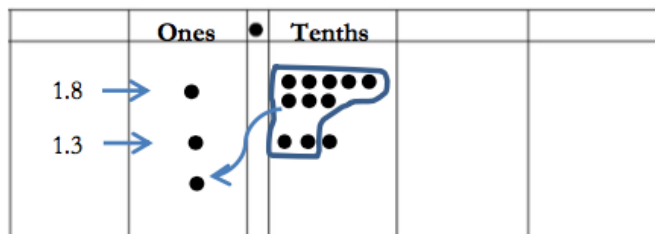
### Example

Represent the digits of the first and second addends on the place value chart. Regroup when there are ten or more in one place. Record the sum.

#### Problem:

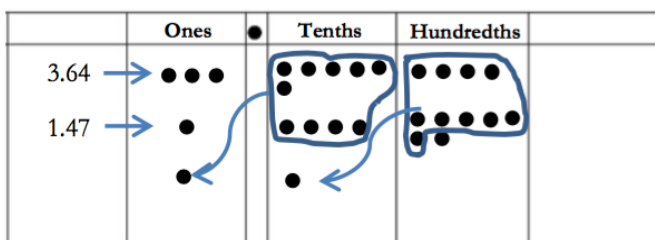
18 tenths + 13 tenths = 31 tenths (Unit Form)

$$1.8 + 1.3 = \underline{\quad}$$



$$\begin{array}{r} 1.8 \\ + 1.3 \\ \hline 3.1 \end{array} \quad \left. \vphantom{\begin{array}{r} 1.8 \\ + 1.3 \\ \hline 3.1 \end{array}} \right\} \text{Algorithm}$$

#### Problem: 3.64 + 1.47



$$\begin{array}{r} 3.64 \\ + 1.47 \\ \hline 5.11 \end{array} \quad \left. \vphantom{\begin{array}{r} 3.64 \\ + 1.47 \\ \hline 5.11 \end{array}} \right\} \text{Algorithm}$$

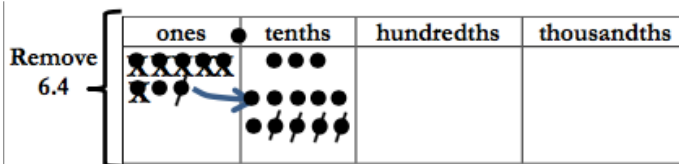
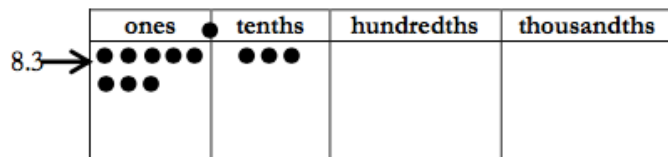
### Subtracting Decimals

When subtracting students will represent the digits in the minuend on their place value chart. Next the student will subtract the subtrahend by crossing out the numbers in the chart. Students will need to regroup if necessary.

#### Example:

83 tenths (minuend) - 64 tenths (subtrahend) = \_\_\_\_\_

$$83 - 64 = \underline{\quad}$$



\*Since there are only 3 tenths, 1 one is renamed as 10 tenths. Now you have a total of 13 tenths, and you can remove 4 tenths. Next remove 6 ones (x) from the 7 ones.

$$\begin{array}{r} 7 \\ \cancel{8} . 13 \\ - 6 . 4 \\ \hline 1 . 9 \end{array} \quad \left. \vphantom{\begin{array}{r} 7 \\ \cancel{8} . 13 \\ - 6 . 4 \\ \hline 1 . 9 \end{array}} \right\} \text{Algorithm}$$

### Application Problems and Answers:

**Problem:** Meyer has 0.64 GB of space remaining on his iPod. He wants to download a pedometer app (0.24 GB) a photo app (0.403 GB) and a math app (0.3 GB). Which combinations of apps can he download? Explain your thinking.

$$\begin{array}{r} 0.24 \\ + 0.403 \\ \hline 0.943 \end{array} \quad \left. \vphantom{\begin{array}{r} 0.24 \\ + 0.403 \\ \hline 0.943 \end{array}} \right\} \begin{array}{l} 0.943 > 0.64 \\ \text{He can't download} \\ \text{all three apps.} \end{array}$$

$$\begin{array}{r} 0.24 \\ + 0.403 \\ \hline 0.643 \end{array} \quad \left. \vphantom{\begin{array}{r} 0.24 \\ + 0.403 \\ \hline 0.643 \end{array}} \right\} \begin{array}{l} 0.643 > 0.64 \\ \text{He can't download} \\ \text{pedometer app} \\ \text{and photo app.} \end{array}$$

$$\begin{array}{r} 0.24 \\ + 0.3 \\ \hline 0.54 \end{array} \quad \left. \vphantom{\begin{array}{r} 0.24 \\ + 0.3 \\ \hline 0.54 \end{array}} \right\} \begin{array}{l} 0.54 < 0.64 \\ \text{He can download} \\ \text{pedometer app} \\ \text{and math app.} \end{array}$$

$$\begin{array}{r} 0.403 \\ + 0.3 \\ \hline 0.703 \end{array} \quad \left. \vphantom{\begin{array}{r} 0.403 \\ + 0.3 \\ \hline 0.703 \end{array}} \right\} \begin{array}{l} 0.703 > 0.64 \\ \text{He can't download} \\ \text{photo app and} \\ \text{math app.} \end{array}$$

Meyer can't download all three apps because he needs 0.943 GB of space and he only has 0.64 GB of space. He can download the photo app by itself but he can't combine it with anything. He does have enough space to download the pedometer and the math app together.

**Problem:** Mrs. Fan wrote 5 tenths minus 3 hundredths on the board. Michael said the answer is 2 tenths because 5 minus 3 is 2. Is he correct? Explain.

Michael is incorrect. He is subtracting unlike units. The problem is  $0.5 - 0.03$  and he is subtracting  $0.5 - 0.3$ . The 5 tenths can be renamed as 50 hundredths so  $0.50$  minus  $0.03$  equals  $0.47$ .

## Application Problem and Answers

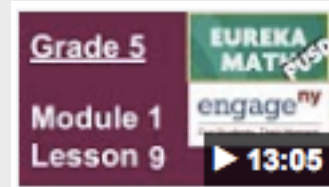
**Problem:** Solve then write your answer in standard form.

- a. **1 tenth + 2 tenths**  
= 3 tenths  
= 0.3
- b. **14 tenths + 9 tenths**  
= 23 tenths  
= 2.3
- c. **6 tenths + 3 thousandths**  
= 600 thousandths + 3 thousandths  
= 603 thousandths  
= 0.603
- d. **5 tenths - 2 tenths**  
= 3 tenths  
= 0.3
- e. **37 thousandths - 16 thousandths**  
= 21 thousandths  
= 0.021
- f. **7 hundreds 8 hundredths - 4 hundredths**  
= 7 hundreds 4 hundredths  
= 700.04

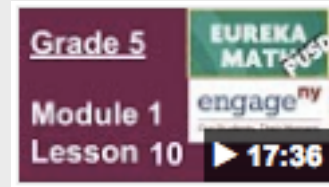
## Online Resources

Flipped learning is a great way to review topics that your student is learning in the classroom. The following are links to videos that give detailed explanations for each lesson in this topic.

**Lesson 9:** <https://www.youtube.com/watch?v=YP6GFofsg08>



**Lesson 10:** <https://www.youtube.com/watch?v=h1kVuS43x7U>



## Homework Help

Looking for assistance for to help complete nightly homework? Check out the following website to get digital copies of homework, as well as detailed explanations in video format:

[http://www.oakdale.k12.ca.us/cms/page\\_view?d=x&piid=&vpid=1401784829350](http://www.oakdale.k12.ca.us/cms/page_view?d=x&piid=&vpid=1401784829350)

Don't forget to check out [www.zearn.com](http://www.zearn.com) for extra practice as well!