MATH NEWS

Grade 5, Module 1, Topic D

5th Grade Math

Module 1: Place Value and Decimal Fractions

Math Parent Letter

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 as 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: Add and Subtracting Decimals

Words to know

- Thousandths/Hundredths/Tenths
- Sum
- Unit Form
- Addend
- Difference
- Decimal Fraction

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 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 hundredth

Decimal Fraction - a fractional number with a denominator of 10 or a power of 10 (10, 100, 1,000). 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

Objectives of Topic D

- **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.**

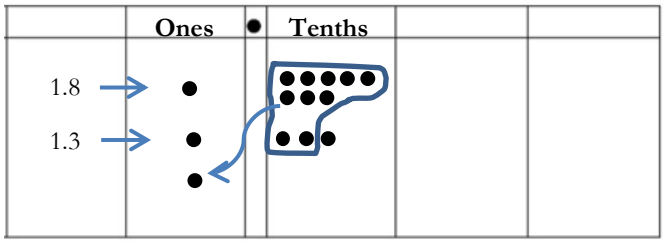
Focus Area– Topic D

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.

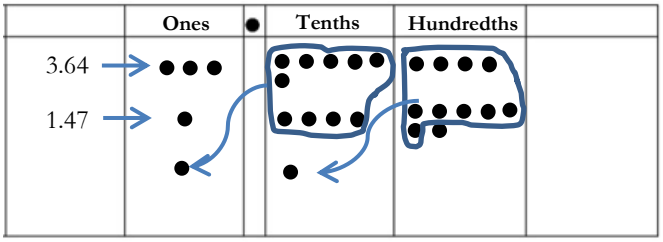
Example: Represent the digits of the first and second addends on the place value chart. Regroup when there are ten or more in one place. Record the sum.

a. 18 tenths + 13 tenths = 31 tenths (Unit Form)
1.8 + 1.3 = _____



1.8
+ 1.3
3.1
Algorithm

b. 3.64 + 1.47 = _____

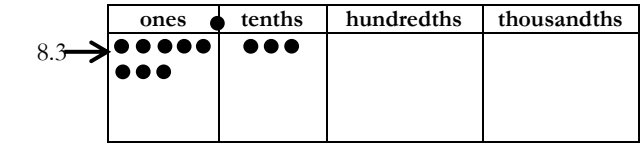


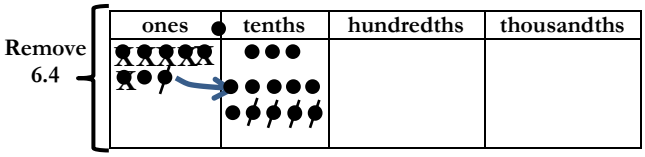
3.64
+ 1.47
5.11
Algorithm

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) = _____
8.3 – 6.4 = _____





****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.**

$$\begin{array}{r} 7 \\ 8.\cancel{1}3 \\ -\ 6.4 \\ \hline 1.9 \end{array}$$ Algorithm

Application Problems and Answers:

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.

$$\begin{array}{r} 0.24 \\ 0.403 \\ +\ 0.3 \\ \hline 0.943 \end{array}$$ 0.943 > 0.64 He can't download all three apps.

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

$$\begin{array}{r} 0.24 \\ +\ 0.3 \\ \hline 0.54 \end{array}$$ 0.54 < 0.64 He can download pedometer app and math app.

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

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.

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.

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