Oak Park Elementary School District 97

MATH NEWS

Grade 5 | Module 2 | Topic G | Partial Quotients and Multi-Digit Decimal Division

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 2 of Eureka Math (Engage New York) Multi-Digit Whole Number and Decimal Fraction Operations. This newsletter will focus on Module 2 Topic G: Partial Quotients and Multi-Digit Decimal Division.

Objectives

- Divided decimal dividends by multiples of 10, reasoning about the placement of the decimal point and making connections to a written method
- Use basic facts to approximate decimal quotients with two-digit divisors, reasoning about the placement of the decimal point.
- Divide decimal dividends by two-digit divisors, estimating quotients, reasoning about the placement of the decimal point, and making connections to a written method.

Important Information

Words to Know

• decompose • dividend (whole) • approximate/estimate (≈)
• factor • quotient • divisor • round • multiple

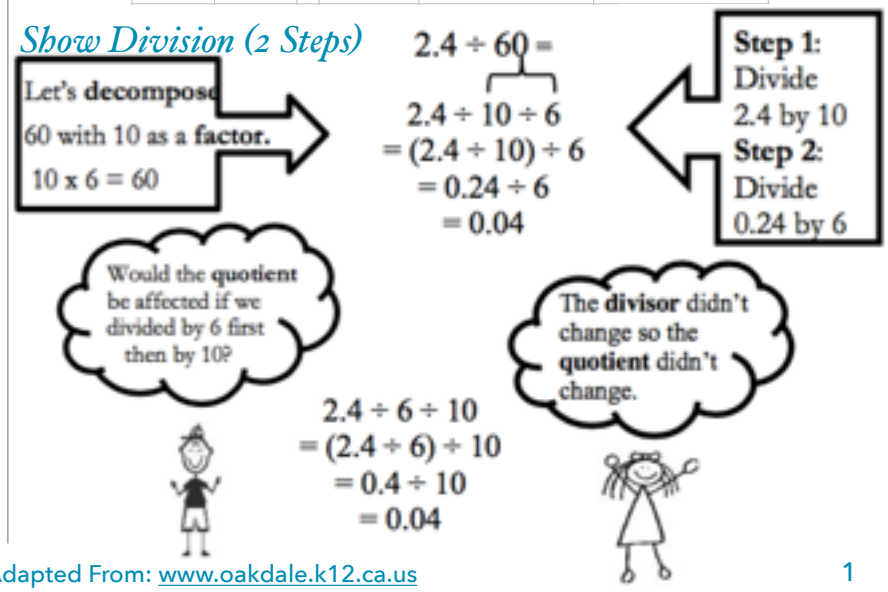
Things to Remember

- The dividend is referred to as the whole
- When dividing by the power of 10 (10, 100, 1000) the digits in the whole (dividend), shift to the right. When dividing by 10, the digits shift 1 place to the right. When dividing by 100, the digits shift 2 place to the right and when dividing by 1000, the digits shift 3 places to the right. *This is how it would look on a place value chart.*

36 $\xrightarrow{\div 10}$ **3.6** $\xrightarrow{\div 10}$ **.36** $\xrightarrow{\div 10}$ **.036**

tens	ones	.	tenths	hundredths	thousandths
3	6	.			
	3	.	6		
		.	3	6	
		.	0	3	6

Show Division (2 Steps)



Example Problems

1. 4.23 ÷ 62 ⟷ *62 **rounds** to 60.*

≈ 4.2 ÷ 60 *4.2 is divisible by 6,*

= (4.2 ÷ 10) ÷ 6 *so the **dividend***

= 0.42 ÷ 6 *becomes 4.2.*

= 0.07

2. 53.9 ÷ 91 ⟷ *91 **rounds** to 90.*

≈ 54 ÷ 90 *53 is not a **multiple** of 9,*

= (54 ÷ 9) ÷ 10 *but 54 is and is close to*

= 6 ÷ 10 *53. So the **dividend***

= 0.6 *becomes 54.*

Application Problems

At times you may have to extend the dividend to tenths and hundredths.

The weight of 35 identical toy cards is 844.2 grams. What is the weight of each toy car?

Strategy: 844.2 ÷ 35

- Can we make a group of 35 with 8 hundreds? (No)
- Since there are 10 tens in 1 hundred, **decompose** 8 hundreds to 80 tens. There are already 4 tens, so there is a total of 84 tens. Can we make a group of 35 with 84 tens? (Yes)

First Division Step: **Estimate**

84 tens ÷ 35

≈ 80 tens ÷ 40

= 2 tens or 20

*(2 is placed in the tens place of the **quotient**)*

```
   2
35)844.2
   70
   14
```

- After subtracting, there are 14 tens left. Can we make a group of 35 with 14 tens? (No) Since there are 10 ones in 1 ten, **decompose** 14 tens into 140 ones. There are already 4 ones, so there is a total of 144 ones. Can we make a group of 35 with 144 ones? (Yes)

Next Division Step

42 tens ÷ 35

≈ 120 ones ÷ 40

= 3 *(3 is placed in the ones place)*

```
   23                 24
35)844.2           35)844.2
   70                 70
   144                144
   105                140
    39                  4
```

(We can get another group of 35 with 39; so we can get 4 groups of 35 instead of 3 groups in 144 ones.)

- After subtracting, there are 4 ones left. Can we make a group of 35 with 14 tens? (No) Since there are 10 tenths in 1 one, we **decompose** 4 ones to 40 tenths. There are already 2 tenths, so there is a total of 42 tenths. Can we make a group of 35 with 42 tenths? (Yes)

Next Division Step

42 tenths ÷ 35

≈ 40 tenths ÷ 40

= 1

(1 is placed in the tenths place)

```
   24.1
35)844.2
   70
   144
   140
    42
    35
     7
```

- After subtracting, there are 7 tenths left. Can we make a group of 35 with 7 tenths? (No). Since there are 10 hundredths in 1 tenth, we **decompose** 7 tenths to 70 hundredths. A zero is added to dividend to show hundredths.

Next Division Step

70 hundredths ÷ 35

≈ 80 hundredths ÷ 40

= 2 hundredths

(2 is placed in the hundredths place)

```
   24.12
35)844.20
   70
   144
   140
    42
    35
     70
     70
```

- Now check to make sure the **quotient** is correct.

```
  24.12   same as   2412 hundredths
x   35              x   35
                    12060
                    72360
                    84420 hundredths = 844.20
```

Answer: Each toy car weighs 42.12 grams.

A member of the cross country team ran a total of 300.9 miles in practice over 59 days. If the member ran the same number of miles each day, how many miles did the member run per day?

Strategy: 300.9 ÷ 59

- Can we make a group of 59 with 3 hundreds? (No)

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- There are 10 tens in 1 hundred, so **decompose** 3 hundreds to 30 tens. Can we make a group of 59 with 30 tens? (No)
- There are 10 ones in 1 ten, so **decompose** 30 tens to 300 ones. Can we make a group of 59 with 300 ones? (Yes)

First Division Step
300 ones ÷ 59
≈ 300 ones ÷ 60
= 5 *(5 is placed in the ones place.)*

```
        5
59 ) 300.9
     295
       5
```

- After subtracting, there are 5 ones left. Can we make a group of 59 with 5 ones? (No)
- There are 10 tenths in 1 one, so we **decompose** 5 ones to 50 tenths. There are already 9 tenths, so there is a total of 59 tenths. Can we make a group of 59 with 59 tenths? (Yes)

Next Division Step
59 tenths ÷ 59
= 1 tenth
(1 is placed in the tenths place.)

```
        5.1
59 ) 300.9
     295
      59
      59
```

Check

```
  5.1          same as   51 tenths
x  59                   x  59
                          459
                         2550
                         3009 tenths = 300.9
```

Answer: The member ran 5.1 miles each day.

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

Don't forget to check out www.zearn.com for extra practice as well!

Flipped Learning

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 24: https://www.youtube.com/watch?v=dTVw70WlrWg

Lesson 25: https://www.youtube.com/watch?v=d8TXx3HS4lA

Lesson 26: https://www.youtube.com/watch?v=NbQlf-fTgCs

Lesson 27: https://www.youtube.com/watch?v=lcz8nfdo1R0