MATH NEWS

Grade 5, Module 2, Topic E

5th Grade Math

Module 2: Multi-Digit Whole Number and Decimal Fraction Operations

Math Parent Letter

This document is created to give parents and students a better understanding of the math concepts found in Eureka Math (© 2013 Common Core, Inc.) that is also posted as the Engage New York material which is taught in the classroom. Grade 5 Module 2 of Eureka Math (Engage New York) covers Multi-Digit Whole Number and Decimal Fraction Operations. This newsletter will discuss Module 2, Topic E.

Topic E. Mental Strategies for Multi-Digit Whole Number Division

Words to know

- multiples
- quotient
- divisor
- round
- approximate (≈)
- dividend (whole)
- divide
- division
- estimation
- basic facts

Things to Remember!!!

- When estimating quotients, round the divisor only.
- Once the divisor is rounded, find a multiple of the first digit of the divisor that would create a number that is close to the dividend.
  Example: 835 ÷ 34 Round 34 to 30. 8 is not a multiple of 3 but 9
  ≈900 ÷ 30 is, so our dividend becomes 900.
  = 30
- The dividend is referred to as the whole.
- When dividing by a 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 places to the right and when dividing by 1,000, the digits shift 3 places to the right.

OBJECTIVES OF TOPIC E

- Use divide by 10 patterns for multi-digit whole number division.
- Use basic facts to approximate quotients with two-digit divisors.

Focus Area– Topic E

Mental Multi-digit whole number division

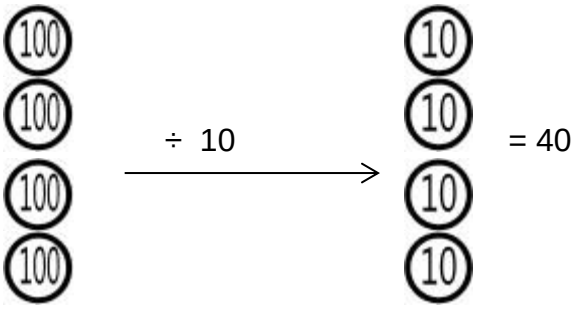
Knowing the multiples of a number

2 – 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24,…
3 – 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36,…
4 – 4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48,…
5 – 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60,…
6 – 6, 12, 18, 24, 30, 36, 42, 48, 54, 60, 66, 72,…
7 – 7, 14, 21, 28, 35, 42, 49, 56, 63, 70, 77, 84,…
8 – 8, 16, 24, 32, 40, 48, 56, 64, 72, 80, 88, 96,…
9 – 9, 18, 27, 36, 45, 54, 63, 72, 81, 90, 99, 108,…
10-10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120,…
11-11, 22, 33, 44, 55, 66, 77, 88, 99, 110, 121, 132,…
12-12, 24, 36, 48, 60, 72, 84, 96, 108, 120, 132, 144,…

Divide. Below number disks are used to show what happens when 400 is divided by 10.

400 ÷ 10

Answer:



Divide.

a. 640,000 ÷ 100
(shift two places to the right)
= 6,400

b. 420,000 ÷7,000
= 420,000 ÷ 1,000 ÷ 7
=(420,000 ÷ 1,000) ÷ 7
(shift three places to the right)
= 420 ÷ 7
= 60

c. 27,000 ÷ 90
=27,000 ÷ 10 ÷ 9
=(27,000 ÷ 10) ÷ 9
(shift one place to the right)
= 2,700 ÷ 9
= 300

d. 350,000 ÷ 500
= 350,000 ÷ 100 ÷ 5
= (350,000 ÷ 100) ÷ 5
(shift two places to the right)
= 3,500 ÷ 5
= 700

Estimate the **quotient** for the following problems.

a. 243 ÷ 56 — *56 **rounds** to 60* ≈ 240 ÷ 60 — *24 is a **multiple** of 6,* = (240 ÷ 10) ÷ 6 — *so the **dividend** becomes 240* = 24 ÷ 6 = 4	b. 633 ÷ 92 — *92 **rounds** to 90* ≈ 630 ÷ 90 — *63 is a **multiple** of 9,* = (630 ÷ 10) ÷ 9 — *so the **dividend** becomes 630* = 63 ÷ 9 = 7	c. 483 ÷ 64 — *64 **rounds** to 60* ≈ 480 ÷ 60 — *48 is a **multiple** of* =(480 ÷ 10) ÷ 6 — *6, so the **dividend** becomes 480* = 48 ÷ 6 = 8
d. 3,924 ÷ 64 — *64 **rounds** to 60* ≈ 3,600 ÷ 60 — *39 is not a **multiple*** = (3,600 ÷ 10) ÷ 6 — *of 6, but 36 is and it is* = 360 ÷ 6 — *close to 39, so the* = 60 — ***dividend** becomes 3,600*	e. 5,567 ÷ 94 — *94 **rounds** to 90* ≈ 5,400 ÷ 90 — *55 is not a **multiple*** = (5,400 ÷ 10) ÷ 9 — *of 9, but 54 is and it is* = 540 ÷ 9 — *close to 55, so the* = 60 — ***dividend** becomes 5,400*	f. 2,749 ÷ 47 — *47 **rounds** to 50* ≈ 2,500 ÷ 50 — *27 is not a **multiple*** = (2,500 ÷ 10) ÷ 5 — *of 5, but 25 is and it is* = 250 ÷ 5 — *close to 27, so the* = 50 — ***dividend** becomes 2,500*
g. 8,391 ÷ 38 — *38 **rounds** to 40* ≈ 8,000 ÷ 40 — *8 is a **multiple** of 4, so* = (8,000 ÷ 10) ÷ 4 — *the **dividend** becomes* = 800 ÷ 4 — *8,000* = 200	h. 6,438 ÷ 73 — *73 **rounds** to 70* ≈ 6,300 ÷ 70 — *64 is not a **multiple*** = (6,300 ÷ 10) ÷7 — *of 7, but 63 is and it* = 630 ÷ 7 — *close to 64, so the* = 90 — ***dividend** becomes 6,300*	i. 6,205 ÷ 27 — *27 **rounds** to 30* ≈ 6,000 ÷ 30 — *6 is a **multiple** of 3,* = (6,000 ÷ 10) ÷ 3 — *so the **dividend*** = 600 ÷ 3 — *becomes 6,000* = 200

Mrs. Henry spent $513 buying Christmas gifts for her 21 grandchildren. If all of the gifts were the same cost, **about** how much did she spend on each gift?

Problem Solving Approach: $513 (amount spent on gifts) ÷ 21 (number of grandchildren) — *21 **rounds** to 20*

≈ $600 ÷ 20 — *5 is not a **multiple** of 2, but 6 is and it is close to 5,*
= (600 ÷ 10) ÷ 2 — *so the **dividend** becomes 600*
= 60 ÷ 2
= $30

Mrs. Henry spent about $30 on each gift for her 21 grandchildren.

Marcus has saved $3,345 working **about** 42 different home repair jobs. If he was paid **about** the same amount per job, **about** how much did Marcus make at each different job?

Problem Solving Approach: $3,345 (Marcus's savings) ÷ 42 (number of Marcus' jobs) — *42 **rounds** to 40*

≈$3,200 ÷ 40 — *33 is not a **multiple** of 4, but 32 is and it is close to 33,*
= (3,200 ÷ 10) ÷ 4 — *so the **dividend** becomes 3,200*
= 320 ÷ 4
= $80

*Marcus made **about** $80 at each of his different home repair jobs.*