



MATH NEWS

Grade 5 | Module 2 | Topic E | Mental Multi-Digit Whole Number 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 mental strategies for multi-digit whole number division.

Objectives

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

Words to Know

- | | |
|---------------|---------------|
| • multiples | • dividend |
| • quotient | (whole) |
| • divisor | • divide |
| • round | • division |
| • approximate | • estimation |
| (\approx) | • basic facts |

Online Practice

Be sure to visit www.zearn.com for extra practice as well!

Important Information

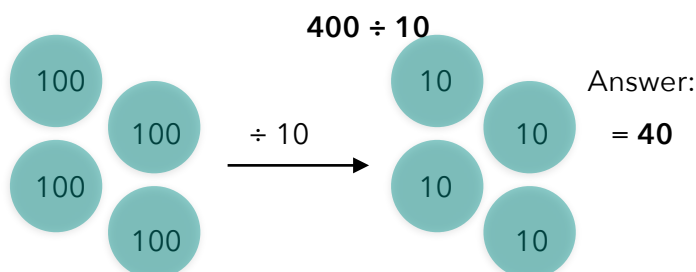
Things to Remember

- 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.
Ex: $835 \div 34$ Round 34 to 30. 8 is not a multiple of 3
 $\approx 900 \div 30 = 30$ but 9 is, so our dividend becomes 900.
- 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 places to the right and when dividing by 1000, the digits shift 3 places to the right.

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, ...

Visual Representation



Example Problems

Divide.

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

b. $420,000 \div 7,000$
 $= 420,000 \div 1,000 \div 7$
 $= (420,000 \div 1,000) \div 7$
(shift two places to the right)
 $= 420 \div 7$
 $= 60$

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

d. $350,000 \div 500$
 $= 350,000 \div 100 \div 5$
 $= (350,000 \div 100) \div 5$
(Shift two places to the right)
 $= 3,500 \div 5$
 $= 700$

Estimate the quotients for the following problems.

a. $243 \div 56$ 56 rounds to 60
 $\approx \underline{240} \div \underline{60}$ 24 is a **multiple** of 6 , so the
 $= (240 \div 10) \div 6$ **dividend** becomes 240
 $= 24 \div 6$
 $= \underline{4}$

b. $633 \div 92$ 92 rounds to 90
 $\approx \underline{633} \div \underline{92}$ 63 is a **multiple** of 9 , so the
 $= (630 \div 10) \div 9$ **dividend** becomes 630
 $= 63 \div 9$
 $= \underline{7}$

c. $483 \div 64$ 64 rounds to 60
 $\approx \underline{480} \div \underline{60}$ 48 is a **multiple** of 6 , so the
 $= (480 \div 10) \div 6$ **dividend** becomes 480
 $= 48 \div 6$
 $= \underline{8}$

d. $3,924 \div 64$ 64 rounds to 60
 $\approx \underline{3,600} \div \underline{60}$ 39 is not a **multiple** of 6 ,
 $= (3,600 \div 10) \div 6$ but 36 is and it is close to
 $= 360 \div 6$ 39 , so the **dividend**
 $= \underline{60}$ becomes $3,600$

e. $5,567 \div 94$ 94 rounds to 90
 $\approx \underline{5,400} \div \underline{90}$ 55 is not a **multiple** of 9 , but
 $= (5,400 \div 10) \div 9$ 54 is and it is close to 55 , so
 $= 540 \div 9$ the **dividend** becomes
 $= \underline{60}$ $54,000$

f. $2,749 \div 47$ 47 rounds to 50
 $\approx \underline{2,500} \div \underline{50}$ 27 is not a **multiple** of 5 , but
 $= (2,500 \div 10) \div 5$ 25 is and it is close to 27 ,
 $= 250 \div 5$ so the **dividend** becomes
 $= \underline{50}$ $2,500$

g. $8,391 \div 38$ 38 rounds to 40
 $\approx \underline{3,600} \div \underline{60}$ 8 is a **multiple** of 4 , so the
 $= (8,000 \div 10) \div 4$ **dividend** becomes $8,000$
 $= 800 \div 4$
 $= \underline{200}$

h. $6,438 \div 73$ 73 rounds to 70
 $\approx \underline{6,300} \div \underline{70}$ 64 is not a **multiple** of 7 , but
 $= (6,300 \div 10) \div 7$ 63 is and it is close to 64 so
 $= 630 \div 7$ the **dividend** becomes
 $= \underline{90}$ $6,300$

i. $6,205 \div 27$ 27 rounds to 30
 $\approx \underline{6,000} \div \underline{30}$ 6 is a **multiple** of 3 , so the
 $= (6,000 \div 10) \div 3$ **dividend** becomes $6,000$
 $= 600 \div 3$
 $= \underline{200}$

Application Problems

Problem: Mrs. Henry spend \$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) \div 21 (number of grandchildren)

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21 **rounds** to 20

$$\begin{aligned} &\approx \$600 \div 20 \\ &= (600 \div 10) \div 2 \\ &= 60 \div 2 \\ &= \$30 \end{aligned}$$

5 is not a **multiple** of 2, but 6 is and it is close to 5, so the **dividend** becomes 600

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

Problem: 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) \div 42 (number of Marcus's jobs)

42 **rounds** to 40

$$\begin{aligned} &\approx 3,200 \div 40 \\ &= (3,200 \div 10) \div 4 \\ &= 320 \div 4 \\ &= \$80 \end{aligned}$$

33 is not a **multiple** of 4, but 32 is and is close to 33, so the **dividend** becomes 3,200

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

Homework Help

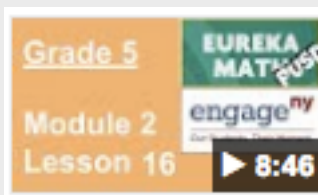
Looking for assistance for to help complete nightly homework? Check out the following website to get digital copies of homework, as well as detailed explanations in video format:

http://www.oakdale.k12.ca.us/cms/page_view?d=x&piid=&vpid=1401784829350

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 16: <https://www.youtube.com/watch?v=L6hrPTkxxgU>



Lesson 17: <https://www.youtube.com/watch?v=gblEqtsm9ZE>



Lesson 18: <https://www.youtube.com/watch?v=zWWRaz6wmNM>

