



# MATH NEWS



Grade 5, Module 2, Topic E

## 5<sup>th</sup> 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 ( $\approx$ )
- 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:  $835 \div 34$  Round 34 to 30. 8 is not a multiple of 3 but 9 is, so our dividend becomes 900.  
 $\approx 900 \div 30 = 30$
- 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.

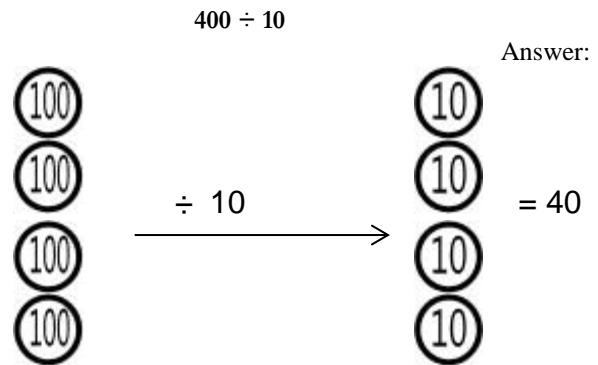
## Focus Area– Topic E

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.



### Divide.

- a.  $640,000 \div 100$   
(shift two places to the right)  
 $= 6,400$
- b.  $420,000 \div 7,000$   
 $= 420,000 \div 1,000 \div 7$   
(shift three 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 quotient for the following problems.

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

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)  $\div$   $21$  (number of grandchildren)  $21$  rounds to  $20$

$$\begin{aligned} &\approx \$600 \div 20 \leftarrow 5 \text{ is not a multiple of } 2, \text{ but } 6 \text{ is and it is close to } 5, \\ &= (600 \div 10) \div 2 \leftarrow \text{so the dividend becomes } 600 \\ &= 60 \div 2 \\ &= \$30 \end{aligned}$$

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)  $\div$   $42$  (number of Marcus' jobs)  $42$  rounds to  $40$

$$\begin{aligned} &\approx \$3,200 \div 40 \leftarrow 33 \text{ is not a multiple of } 4, \text{ but } 32 \text{ is and it is close to } 33, \\ &= (3,200 \div 10) \div 4 \leftarrow \text{so the dividend becomes } 3,200 \\ &= 320 \div 4 \\ &= \$80 \end{aligned}$$

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