**Lesson 9**

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| Topic Goal: Dividing by powers of ten. |

Whole numbers:

When you divide **whole numbers** by 10, 100, 1000, and so on, you count the number of zeros in the dividing number and move the decimal place to the **left** by that amount.

*Remember you’re making the number smaller.*

$$85÷10=8.5$$

10 has ONE zero, so you move the decimal place to the **left** only once.

$$3095÷100=30.95$$

100 has TWO zeros, so you move the decimal place to the **left** two spaces.

$$65÷1000=0.065$$

1000 has THREE zeros, so you move the decimal place to the **left** three spaces.

Decimals:

The same rule can be applied when **dividing decimal numbers** by powers of 10 such as 10, 100, 1000. Just move the decimal to the ***left*** as many places as there are zeroes in the divisible.

$$10.25÷10=1.025$$

Move the decimal point one step to the left (10 has one zero)

$$1235.96÷100=12.3596$$

Move the decimal point two steps to the left (100 has two zeros).

$$25.6÷1000=0.0256$$

Move the decimal point three steps to the left (1000 has three zeros). Write a zero in front of 25.6 so that the decimal point can “jump over to” that place.

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| Example(s):  |

1. $87 ÷100= ?$

To divide by 100 means to move the decimal place to the left two steps (because 100 has 2 zeros). Therefore, $87 ÷100= 0.87$

1. $? ÷1000=3.1$

To divide by 1000 means to move the decimal place to the left three steps. Therefore, $3100 ÷1000=3.1$

1. $40365 ÷ ?=4036.5$

Notice that there is a decimal place between last two digits in the answer. This means that the decimal place was moved to the left only once. 10 has only one zero, therefore,

$$40365 ÷ 10=4036.5$$

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|  Practice Questions:  |

Evaluate the following. (Do not use a calculator)

1. $12 ÷10=$ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. $345 ÷10=\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_$
3. $54 ÷100$ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. 6584 $÷100$ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. 7 $÷100= \\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_$
6. 3.45 $÷10=$ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. 34.67 $÷10=$ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
8. 9876.12 $÷1000= $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
9. 567.21 $÷1000=$ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Find the missing number in each question.

1. ? $÷$ 10 = 300

? =\_\_\_\_\_\_\_\_

1. ? $÷10=3522$

? =\_\_\_\_\_\_\_\_

1. ? $÷100=905$

? =\_\_\_\_\_\_\_\_

1. ? $÷100=34101$

? =\_\_\_\_\_\_\_\_

1. ? $÷$ 1000 = 1000

? =\_\_\_\_\_\_\_\_

1. ? $÷1000=432$

? =\_\_\_\_\_\_\_\_

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|  Assessment:  |

Evaluate the following without using your calculator.

1. 0.24 ÷ 10 = \_\_\_\_\_\_\_\_\_\_\_\_\_

2. 240 ÷ 1000 = \_\_\_\_\_\_\_\_\_\_\_

3. 7.8 ÷ 10= \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. 1.6 ÷ 10 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. 0.16 ÷ 100 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_

6. 247 ÷ 1000 = \_\_\_\_\_\_\_\_\_\_\_

7. 18.5 ÷ 1000 = \_\_\_\_\_\_\_\_\_\_

8. 1.4 ÷ 100 = \_\_\_\_\_\_\_\_\_\_\_\_\_

Find the missing number in each question.

1. ? $÷$ 10 = 200

? =\_\_\_\_\_\_\_\_

1. ? $÷100=333$

? =\_\_\_\_\_\_\_\_

1. ? $÷1000=564$

? =\_\_\_\_\_\_\_\_