**Lesson 8**

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| Topic Goal: Multiplying powers of ten |

Whole Numbers:

When you multiply whole numbers by 10, 100, 1000, and so on, you can “add” as many zeros on the product as there are in the factor of 10, 100, 1000 etc.

*Remember by multiplying by powers of 10, your answer will be bigger.*

$$2×10=20$$

$$2×100=200$$

$$2×1000=2000$$

Decimals:

The same rule or “shortcut” can be applied when **multiplying decimal numbers** by powers of 10 such as 10, 100, 1000. Just move the decimal to the ***right*** as many places as there are zeroes in the factor.

$$4.5 ×10=45$$

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

$$2.65×100=265$$

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

$$0.98×1000=980$$

Move the decimal point three steps to the right (1000 has three zeros). Write a zero at the end of 0.98 so that the decimal point can “jump over to” that place.

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| Example(s):  |

1. $? × 0.04=40$

To get 40 the decimal place has been moved to the right three places. 1000 has three zeros. Therefore, $1000 × 0.04=40.$

2) $100 × 365=$ ?

Since 100 has two zeros, you can “add” two zeros to the end of 365. Therefore, $100 × 365=36500$

3) $? × 5.32=53.2$

 Notice that the decimal place has been moved to the right once. Ten has one zero, therefore, $10 × 5.32=53.2$

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|  Practice Questions:  |

Without the use of a calculator, evaluate each question.

$a) 8 × 10=$ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b) 14 $×$ 100 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_

c) 4.53 $× 10=$ \_\_\_\_\_\_\_\_\_\_\_\_\_

d) 23.5 $× 100=$ \_\_\_\_\_\_\_\_\_\_\_\_

e) 55 $× 1000= $ \_\_\_\_\_\_\_\_\_\_\_\_\_

f) 1.2 $× 10= $\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

g) 2.3578 $× 1000= $\_\_\_\_\_\_\_\_\_\_\_

h) 0.002 $× 10=$ \_\_\_\_\_\_\_\_\_\_\_\_\_\_

i) 0.3423 $× 1000=$ \_\_\_\_\_\_\_\_\_\_\_\_

j) 4.320 $× 10=$ \_\_\_\_\_\_\_\_\_\_\_\_\_

Find the missing number in each question.

1. ? $× 10=4 300$

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

1. ? $× 10=12 777$

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

1. ? $× 100=24 000$

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

1. ? $× 100=342 000$

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

1. ? $× 1000=160 000$

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

1. ? $× 1000= 2 345 000$

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

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|  Assessment:  |

Part A:

Without the use of a calculator evaluate the following.

1. 122 x 1000 = \_\_\_\_\_\_\_\_\_\_\_\_\_
2. 88 x 10 =\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. 0.677 x 1000 = \_\_\_\_\_\_\_\_\_\_\_\_
4. 6.2 x 100 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. 270 x 1000 = \_\_\_\_\_\_\_\_\_\_\_\_\_
6. 0.6 x 100 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. 1.954 x 1000 = \_\_\_\_\_\_\_\_\_\_\_\_\_
8. 9.8 x 100 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
9. 0.265 x 100 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_
10. 8.1 x 100 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
11. 0.002 x 100 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_
12. 0.001 x 10 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
13. 0.25 x 1000 = \_\_\_\_\_\_\_\_\_\_\_\_\_
14. 0.185 x 10 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
15. 0.60 x 10 =\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Part B:

Find the missing number in each question.

1. ? $× 10=330$

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

1. ? $× 10=13 66$

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

1. ? $× 100=55 000$

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

1. ? $× 1000= 3 678 000$

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