Name _____ Period_____ Date_____

Created by Corbin/Lyons

Pre-Algebra: Scientific Notation

Creating Scientific Notation to express very large or very small numbers.

An estimate of the world's population in 2011 was 7,020,000,000. Write the world's population in scientific notation.

7 0 2 0 0 0 0 0 0 0

A. Move the decimal point in the number to the left as many places as necessary to find a number that is greater than or equal to 1 and less than 10.

What number did you find? _____

B. Divide 7,020,000,000 by your answer to A. Write your answer as a power of 10.

_____

C. Combine your answer to A and B to represent 7,020,000,000.

7,020,000,000 = ____ X $10^{\_\_}$

An E. Coli bacterium is about 0.0000005 meters wide. Write the width of the bacterium in scientific notation.

0. 0 0 0 0 0 0 5

D. Move the decimal point in the number to the right as many places as necessary to find a number that is greater than or equal to 1 and less than 10.

What number did you find? _____

E. Divide 0.0000005 by your answer to A. Write your answer as a power of 10.

_____

F. Combine your answer to A and B to represent 0.0000005.

0.0000005 = ____ X $10^{\_\_}$

What do you notice about the sign of the exponent for numbers greater than one, such as 7,020,000,000?

_____

What do you notice about the sign of the exponent for numbers less than one, such as 0.0000005?

_____

Writing a number in Standard Notation

A. $5.903 \text{ X } 10^8$

What is the exponent of the power of 10? _____ Which direction should you move your decimal point? _____

Place zeros in before or after the number depending on which direction you said to move and place the decimal point.

__ __ __ __ __ __ __ __ 5 9 0 3 __ __ __ __ __ __ __ __ __

The number $5.903 \text{ X } 10^8$ written in standard form is _____

B. $2.86 \text{ X } 10^{-6}$

What is the exponent of the power of 10? _____ Which direction should you move your decimal point? _____

Place zeros in before or after the number depending on which direction your said to move and place the decimal point.

__ __ __ __ __ 2 8 6 __ __ __ __

The number $2.86 \text{ X } 10^{-6}$ written in standard form is _____

Comparing numbers written in Standard Notation

A. The weight of a Whale Shark is $4 \text{ X } 10^4$ lbs while the weight of a dolphin is $2 \text{ X } 10^2$. How many times greater is the weight of the Blue Whale compared to the weight of the dolphin?

First compare the values between 1 and 10.

The **4** in $4 \text{ X } 10^4$ is _____ times greater than the **2** in $2 \text{ X } 10^2$.

Next compare the powers of 10.

10^4 is _____ times greater than 10^2.

Circle the most reasonable answer. The weight of the whale share is **2 /20 /200/2000** times as great as the dolphin.