Name_____   Date _____

Mr. Tallman

Do Now

Convert the following into scientific notation.

| 1) 9,630,000 | 2) 7,320 | 3) 0.0000054 |

Convert the following into standard form.

| 4) 3.5×10^7 | 5) 2.935×10^{10} | 6) 9.2×10^{-4} |

Lesson #48 – Multiplying and Dividing Numbers in Scientific Notation

Numbers in Scientific Notation can be multiplied and divided using your calculators!

MAKE SURE TO INCLUDE PARENTHESIS WHEN TYPING YOUR NUMBERS INTO THE CALCULATOR. ALSO, BE CAREFUL HOW THE QUESTION WANTS THE FINAL ANSWER WRITTEN.

Multiply the following. Write your answers in scientific notation.

1) $(5.5 \times 10^4)(2.0 \times 10^5)$	2) $(2.8 \times 10^8)(1.9 \times 10^{-5})$
3) $(6 \times 10^6)(4 \times 10^{-1})$	4) $(4.11 \times 10^5)(8.65 \times 10^{-5})$

Divide the Following. Write your answers in scientific notation.

5) $\dfrac{2.05 \times 10^8}{8.2 \times 10^4}$	6) $(3.6 \times 10^8) \div (6 \times 10^5)$
7) $(4.8 \times 10^7) \div (2 \times 10^{-4})$	8) $(9.6 \times 10^7) \div (3 \times 10^5)$

9) When the sun makes an orbit around the center of the Milky Way, it travels 2.025×10^4 kilometers. The orbit takes 225,000,000 years. At what rate does the sun travel in Kilometers per year? Write your answer in scientific notation.

10) Light travels at a speed of 1.86×10^5 miles per second. It takes light from the Sun about 4.8×10^3 seconds to reach Saturn. Find the approximate distance from the Sun to Saturn. Write your answer in scientific notation.

11) California, the most populous state, has approximately 4×10^7 people living in it. The population of the entire United States is approximately 3×10^8 people. About how many **times greater** is the population of the United States than the population of California? Express in standard form.

12) The world's thinnest computer chip is 7.5×10^{-3} millimeters thick. What would be the height of a stack of 3×10^9 chips? Express in scientific form.

13) The average subway riders in City A is approximately 1×10^6 and in City B it is approximately 50,000. How many times as great is the average number of riders in City A as in City B?

14) In 2010, the world population was about 6,860,000,000. The population of the United States was about 3×10^8. **About** how many times larger is the world population than the population of the United States?

15) A lab has two bacteria cultures. Culture A contains 8×10^4 bacteria and culture B contains 4×10^6 bacteria. How do the two cultures compare in size?

    A) Culture A contains twice as many as culture B.

    B) Culture A contains $\frac{1}{2}$ as many as culture B.

    C) Culture A contains $\frac{1}{25}$ as many bacteria as culture B.

    D) Culture A contains $\frac{1}{50}$ as many bacteria as culture B.