

Methods of studying...

- "I chose to teach my mom how to work with exponents. It was helpful because she asked questions then I explained why something was the correct answer."
- "Making up my own problems was helpful because I was actually doing the math, and I could manage the difficulty of them based on my confidence of the subject."




## Plan for the next week:

Table of Contents ( $2^{\text {nd }}$ Semester)
p. 1 Exponent Basics (1.2)

TODAY: Scientific Notation Review MONDAY: Calculating with Scientific Notation TUESDAY: Scientific Notation Story Problems WEDNESDAY: Exponents \& Sci Notation Review THURSDAY: Exponents \& Sci Notation Review FRIDAY: Exponents \& Sci Notation TEST

Zero \& Negative Exponents (1.5)
p. 5 Scientific Notation (1.6)



## Some really big numbers...

Distance from Earth to Pluto (miles)

- We don't want to have to always write 2,660,000,000
Number of cells in your body (estimate) these big numbers out. 37,200,000,000,000
Mass of the earth (kilograms)
5,972,000,000,000,000,000,000,000
A googol
$10,000,000,000,000,000,000,000,000,000,000,000,0$ $00,000,000,000,000,000,000,000,000,000,000,000,0$ 00,000,000,000,000,000,000,000,000,000
o Shorter way of writing 2,660,000,000?



## COPY:

WHY SCIENTIFIC NOTATION WORKS
o $8.2 \times 10^{4}$ means to take 8.2 and multiply it by 10 four times. Each time you "move the decimal to the right", you are really multiplying by 10 .


Converting from Scientific to Standard Notation
Scientific Notation $\rightarrow$ Standard Notation

| 1. $9 \times 10^{4}$ | 90,000 |
| :--- | :--- |
| 2. $3.45 \times 10^{6}$ | $3,450,000$ |
| 3. $9.1234 \times 10^{2}$ | 912.34 |

4. (leave 2 more blanks for later)
5. $\qquad$

Writing Numbers in Scientific
Notation
Standard Notation $\rightarrow$ Scientific Notation:
. 8,000,000 $8 \times 10^{6}$
2. 75,000
$7.5 \times 10^{4}$
3. 1405
$1.405 \times 10^{3}$
4. (leave 2 more blanks for later)
5. $\qquad$



## Which number is bigger?

- 870000000000000000000000000000000000 000000000000000000000000000000000000 000000000000000000000000000000000000
$8.7 \times 10^{107}$
-125000000000000000000000 000000000000000000000000 000000000000000000000000 000000000000000000000000
$1.25 \times 10^{95}$



Negative Exponents in Scientific Notation $06 \times 10^{-4}$ is like dividing by ten 4 times.

- Each time you move the decimal to the left, you are really dividing by ten.

Converting from Scientific to Standard Notation

## Scientific Notation $\rightarrow$ Standard Notation

1. $9 \times 10^{4}$

90,000
2. $3.45 \times 10^{6}$

3,450,000
3. $9.1234 \times 10^{2}$
912.34
4. $6.04 \times 10^{-4}$
.000604
5. $8 \times 10^{-3}$
.008


