

# Scientific Notation

**MRS. NIELSEN  
CHEMISTRY**

# Converting from Decimal Form into Scientific Notation

Steps:

1. Move the decimal so the **base number** is between 1-10.
2. The number of places you move the decimal represents the **exponent**.
3. If you move the decimal to the **left**, the exponent will be **positive**.
4. If you move the decimal to the **right**, the exponent will be **negative**.

# Examples

Convert 5,796.2 into Scientific Notation

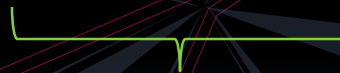
5,796.2

=

5.7962 x 10<sup>3</sup>



Move the decimal to the left 3 places



Base Number is between 1-10



Exponent is positive

# Examples

Convert 0.981 into Scientific Notation

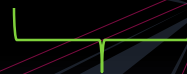
0.981



Move the decimal to the right 1 place

=

9.81 x 10<sup>-1</sup>



Base Number is between 1-10

Exponent is negative

# Converting from Scientific Notation into Decimal Form

Rules:

- The **exponent** represents the number of places you move the decimal.
- Move the decimal to the **right** if the exponent is **positive**.
- Move the decimal to the **left** if the exponent is **negative**.

# Examples

Convert  $7.683 \times 10^{-3}$  into Decimal Form

$$\underbrace{000}7.683 \times 10^{-3} = 0.007683$$

To the left

Move 3  
decimal  
places

Move the decimal 3 places  
to the left

# Examples

Convert  $1.7925 \times 10^4$  into Decimal Form

$$1.7925 \times 10^4 = 17925.$$

To the right

Move 4  
decimal  
places

Move the decimal 4 places  
to the right

# Practice Problems

Convert the following into Scientific Notation

$$0.00893 = 8.93 \times 10^{-3} \quad \text{Answers}$$

$$9,842,527 = 9.842527 \times 10^6$$

$$789.1 = 7.891 \times 10^2$$



# Practice Problems

Convert the following into Decimal Form

## Answers

$$2.683 \times 10^6 = 2,683,000$$

$$5.67 \times 10^{-5} = 0.0000567$$

$$3.26 \times 10^3 = 3260$$

# Sig Figs Review

How many sig figs are in each of the following?

- a. 9,000      1 sig fig
- b. 9,000.      4 sig figs
- c. 9,000.0      5 sig figs
- d.  $9.0 \times 10^3$       2 sig figs
- e.  $9.00 \times 10^3$       3 sig figs

Conclusion: The “same” number can be written MANY different ways!