

Name: \_\_\_\_\_

Class: 1 4

## Notes: Scientific Notation

Why do we use scientific notation? \_\_\_\_\_

What two things are always true of a number written in scientific notation?

1. \_\_\_\_\_

2. \_\_\_\_\_

Circle the numbers that are correctly written in scientific notation and place an X over the numbers that are not.

$12.8 \times 10^6$

$2.56 \times 10^{-16}$

$5.2 \times 10^{1.6}$

$4.35 \times 10^6$

$1.28 \times 10^6$

$8.93 \times 10^{1.6}$

$3.47 \times 10^6$

$20.1 \times 10^5$

What does a positive exponent mean? \_\_\_\_\_

What does a negative exponent mean? \_\_\_\_\_

**Match each number in standard form to the same number written in scientific notation.**

**Circle your choice.**

**Standard Form:**

**Scientific Notation:**

**Standard Form:**

**Scientific Notation:**

$1\ 280\ 000.0 = 1.28 \times 10^6 \text{ or } 1.28 \times 10^{-6}$

$0.000\ 044 = 4.4 \times 10^5 \text{ or } 4.4 \times 10^{-5}$

$620\ 000\ 000 = 6.2 \times 10^8 \text{ or } 6.2 \times 10^{-8}$

$-0.000\ 005\ 6 = -5.6 \times 10^6 \text{ or } -5.6 \times 10^{-6}$

$0.000\ 000\ 15 = 1.5 \times 10^7 \text{ or } 1.5 \times 10^{-7}$

$780\ 000.0 = 7.8 \times 10^5 \text{ or } 7.8 \times 10^{-5}$

$-3\ 200.00 = -3.2 \times 10^3 \text{ or } -3.2 \times 10^{-3}$

$0.000\ 034 = 3.4 \times 10^5 \text{ or } 3.4 \times 10^{-5}$

$0.000\ 025\ 1 = 2.51 \times 10^5 \text{ or } 2.51 \times 10^{-5}$

$725\ 000\ 000 = 7.25 \times 10^8 \text{ or } 7.25 \times 10^{-8}$

$1\ 370\ 000\ 000 = 1.37 \times 10^9 \text{ or } 1.37 \times 10^{-9}$

$0.000\ 000\ 35 = 3.5 \times 10^7 \text{ or } 3.5 \times 10^{-7}$

$561\ 000\ 000 = 5.61 \times 10^8 \text{ or } 5.61 \times 10^{-8}$

$0.000\ 012 = 1.2 \times 10^5 \text{ or } 1.2 \times 10^{-5}$

Write the following numbers in scientific notation.

Number:	Scientific Notation:	Number:	Scientific Notation:
230 000 000	= _____	0.000 000 054	= _____
66 500.0	= _____	740 000 000	= _____
0.000 89	= _____	0.000 000 075	= _____
452 000 000 000	= _____	63 500 000	= _____
470 000.00	= _____	0.000 000 20	= _____
56 800 000	= _____	4 800 000 000	= _____
0.000 000 26	= _____	0.000 022	= _____
75 000 000 000	= _____	850 000 000	= _____

Putting a number in scientific notation into the calculator:

Step #1: \_\_\_\_\_

\_\_\_\_\_

Step #2: \_\_\_\_\_

\_\_\_\_\_

Step #3: \_\_\_\_\_

\_\_\_\_\_

Step #4: \_\_\_\_\_

\_\_\_\_\_

Write the numbers below in correct scientific notation:

3.01E24

1.51E24

7.4E25

1.64E-27

\_\_\_\_\_

**Multiply the following numbers. Be sure to place the numbers into the calculator correctly.**

$$(2)(2.5 \times 10^2) = \underline{\hspace{2cm}} \quad (1.4)(4.6 \times 10^{24}) = \underline{\hspace{2cm}}$$

$$(6)(4.5 \times 10^4) = \underline{\hspace{2cm}} \quad (2.6)(5.6 \times 10^{27}) = \underline{\hspace{2cm}}$$

$$(7)(1.8 \times 10^{-5}) = \underline{\hspace{2cm}} \quad (10)(2.6 \times 10^{-24}) = \underline{\hspace{2cm}}$$

$$(6.3)(5.0 \times 10^6) = \underline{\hspace{2cm}} \quad (8.6)(9.6 \times 10^{-23}) = \underline{\hspace{2cm}}$$

$$(1.5)(9 \times 10^{-9}) = \underline{\hspace{2cm}} \quad (9.0)(2.0 \times 10^{25}) = \underline{\hspace{2cm}}$$

$$(2.5)(2.5 \times 10^8) = \underline{\hspace{2cm}} \quad (.09)(1.5 \times 10^{24}) = \underline{\hspace{2cm}}$$

$$(0.25)(6.7 \times 10^2) = \underline{\hspace{2cm}} \quad (1.75)(5.2 \times 10^{26}) = \underline{\hspace{2cm}}$$

**Divide the following numbers. Be sure to place the numbers into the calculator correctly.**

$$7.82 \times 10^3 \div 2.35 \times 10^3 = \underline{\hspace{2cm}}$$

$$5.0 \times 10^{30} \div 9.0 \times 10^{29} = \underline{\hspace{2cm}}$$

$$3.01 \times 10^{24} \div 6.02 \times 10^{23} = \underline{\hspace{2cm}}$$

$$7.2 \times 10^5 \div 5.7 \times 10^4 = \underline{\hspace{2cm}}$$

$$1.5 \times 10^8 \div 6.0 \times 10^6 = \underline{\hspace{2cm}}$$

$$5.4 \times 10^5 \div 2.6 \times 10^3 = \underline{\hspace{2cm}}$$

$$1.5 \times 10^7 \div 3.0 \times 10^6 = \underline{\hspace{2cm}}$$

$$6.0 \times 10^{24} \div 4.6 \times 10^{22} = \underline{\hspace{2cm}}$$

Compare using  $<$ ,  $>$ , or  $=$ .

$$2.3 \times 10^4 \underline{\hspace{1cm}} 4.6 \times 10^6$$

$$6.4 \times 10^{-12} \underline{\hspace{1cm}} 6.3 \times 10^{-12}$$

$$7.2 \times 10^{-13} \underline{\hspace{1cm}} 5.3 \times 10^{-17}$$

$$8.2 \times 10^{17} \underline{\hspace{1cm}} 2.8 \times 10^{-17}$$

$$3.9 \times 10^{11} \underline{\hspace{1cm}} 1.7 \times 10^{12}$$

$$9.0 \times 10^{-25} \underline{\hspace{1cm}} 9.0 \times 10^{-24}$$