

## Review of Scientific Notation

Scientific notation provides a place to hold the zeroes that come after a whole number or before a fraction. The number 100,000,000 for example, takes up a lot of room and takes time to write out, while  $10^8$  is much more efficient.

Though we think of zero as having no value, zeroes can make a number much bigger or smaller. Think about the difference between 10 dollars and 100 dollars. Even one zero can make a big difference in the value of the number. In the same way, 0.1 (one-tenth) of the US military budget is much more than 0.01 (one-hundredth) of the budget.

The small number to the right of the 10 in scientific notation is called the exponent. Note that a negative exponent indicates that the number is a fraction (less than one).

The line below shows the equivalent values of decimal notation (the way we write numbers usually, like "1,000 dollars") and scientific notation ( $10^3$  dollars). For numbers smaller than one, the fraction is given as well.

	smaller		bigger			
Fraction	1/100	1/10				
Decimal notation	0.01	0.1	1	10	100	1,000
Scientific notation	$10^{-2}$	$10^{-1}$	$10^0$	$10^1$	$10^2$	$10^3$

### Practice With Scientific Notation

Write out the regular form of the following numbers that are in scientific notation.

#### Section A:

1)  $10^2 =$  \_\_\_\_\_

4)  $10^{-2} =$  \_\_\_\_\_

2)  $10^4 =$  \_\_\_\_\_

5)  $10^{-5} =$  \_\_\_\_\_

3)  $10^7 =$  \_\_\_\_\_

6)  $10^0 =$  \_\_\_\_\_

#### Section B:

7)  $3 \times 10^2 =$  \_\_\_\_\_

10)  $6 \times 10^{-3} =$  \_\_\_\_\_

8)  $7 \times 10^4 =$  \_\_\_\_\_

11)  $900 \times 10^{-2} =$  \_\_\_\_\_

9)  $2.4 \times 10^3 =$  \_\_\_\_\_

12)  $4 \times 10^{-6} =$  \_\_\_\_\_

**Section C:** Now convert from decimal form into scientific notation.

13)  $10 =$  \_\_\_\_\_ 16)  $0.1 =$  \_\_\_\_\_

14)  $100 =$  \_\_\_\_\_ 17)  $0.0001 =$  \_\_\_\_\_

15)  $100,000,000 =$  \_\_\_\_\_ 18)  $1 =$  \_\_\_\_\_

19)  $400 =$  \_\_\_\_\_ 22)  $0.005 =$  \_\_\_\_\_

20)  $60,000 =$  \_\_\_\_\_ 23)  $0.0034 =$  \_\_\_\_\_

21)  $750,000 =$  \_\_\_\_\_ 24)  $0.06457 =$  \_\_\_\_\_

### **And Even MORE Practice with Scientific Notation**

What is the number of your street address in scientific notation?

What is  $1.25 \times 10^{-1}$ ? Is this the same as 125 thousandths?

0.000553 is what in scientific notation?

What is  $3.4 \times 10^7$ ? Is this the same as 34 million?