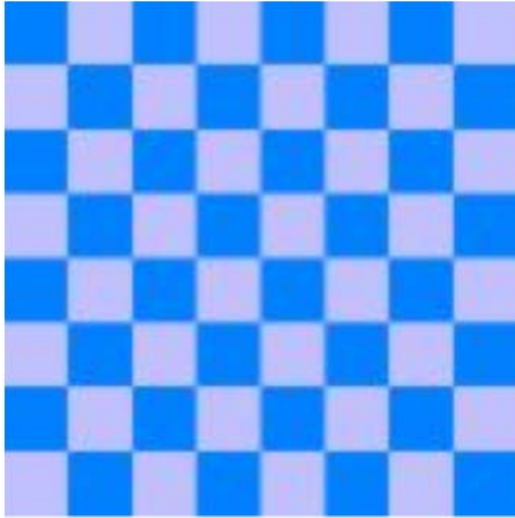


# 9.4 Scientific Notation

ALGEBRA

Write your questions here!



Write each number in standard notation.

1)

2)

Write each number in scientific notation.

3) 0.00351



4) 6710000

# That's Weird

**Simplify. Write each answer in scientific notation.**

7)  $(4.9 \times 10^{-3})(2.8 \times 10^2)$

8)  $(3.76 \times 10^2)(8 \times 10^2)$

15)  $(3.7 \times 10^{-6})^2$

16)  $(7.8 \times 10^5)^3$

11)  $\frac{12 \times 10^3}{4 \times 10^5}$

12)  $\frac{2.25 \times 10^2}{2 \times 10^{-6}}$

**Summarize your notes:**

## 9.4 PRACTICE

Write the number in scientific notation.

1. 72,000,000

2. 0.0046

3. 90,000,000

4. 0.00005

5. 45,900,000,000

6. 0.000279

7. -0.000015

8. -30

Multiple Choice

9.

★ **MULTIPLE CHOICE** Which number represents 54,004,000,000 written in scientific notation?

(A)  $54004 \times 10^6$

(B)  $54.004 \times 10^9$

(C)  $5.4004 \times 10^{10}$

(D)  $0.54004 \times 10^{11}$

Write the number in standard form.

10.  $2.6 \times 10^3$

11.  $7.5 \times 10^7$

12.  $1.11 \times 10^2$

13.  $4.709 \times 10^{-6}$

14.  $6.1 \times 10^{-3}$

15.  $4.4 \times 10^{-10}$

16.  $6.477 \times 10^9$

17.  $2.852 \times 10^{-5}$

Error Analysis

18.

**ERROR ANALYSIS** Describe and correct the error in writing  $1.24 \times 10^{-3}$  in standard form.

$$1.24 \times 10^{-3} = 1240$$



Fill in the blank with  $<$ ,  $>$ , or  $=$

19.  $5.6 \times 10^3$  \_\_\_\_ 56,000

20.  $9.86 \times 10^{-3}$  \_\_\_\_ 0.00986

21.  $4.5 \times 10^6$  \_\_\_\_ 450,000

22. 0.0000000006 \_\_\_\_  $6 \times 10^{-9}$

**Evaluate the expression. Write your answer in scientific notation.**

23.  $(4.4 \times 10^3)(1.5 \times 10^{-7})$

24.  $(7.63 \times 10^{-5})(5.8 \times 10^2)$

25.  $(8.1 \times 10^{-4})(9 \times 10^{-6})$

26.  $\frac{6 \times 10^{-3}}{8 \times 10^{-6}}$

27.  $\frac{5.4 \times 10^{-5}}{1.8 \times 10^{-2}}$

28.  $\frac{4.1 \times 10^4}{8.2 \times 10^8}$

29.  $(5 \times 10^{-8})^5$

30.  $(7 \times 10^{-5})^4$

31.  $(1.4 \times 10^3)^2$

**Multiple Choice**

32.

★ **MULTIPLE CHOICE** Which number is the value of  $\frac{1.235 \times 10^4}{9.5 \times 10^7}$ ?

Ⓐ  $0.13 \times 10^{-4}$

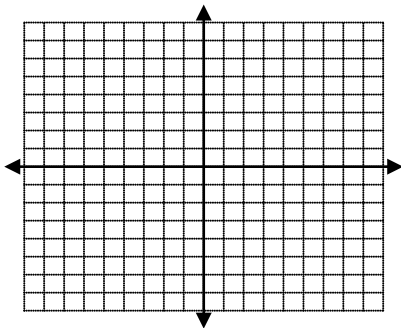
Ⓑ  $1.3 \times 10^{-4}$

Ⓒ  $1.3 \times 10^{-3}$

Ⓓ  $0.13 \times 10^3$

**SKILLZ REVIEW****GRAPH**

1.  $y = x - 3$

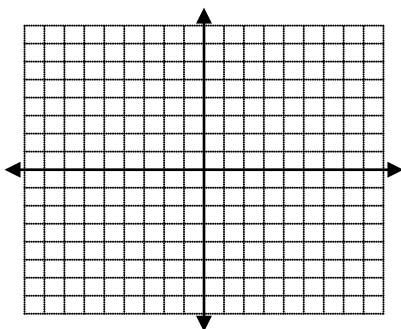
**EVALUATE**

2.  $\sqrt{a} - 3b^2$ , when  $a = 4$  and  $b = 3$

**SOLVE**

3.  $-3(2x - 5) = 21$

4.  $x = 3$



5.  $3d + \frac{d}{2} - t$ , when  $d = -2$  and  $t = 1$

6.  $4x + 3 = 3 - 2(2x - 12)$

## 9.4 APPLICATION

Write in scientific notation.

1. 0.000000485

Simplify. Express in standard notation.

2.  $(2.2 \times 10^3)^4$

3. The mean distance of the Earth from the Moon is about 384,400 km. Write in scientific notation.

4. The orbital period of the former planet Pluto is about  $9.1 \times 10^4$  days. Write in decimal form.

5. The lengths of several insects are shown in the table. List the lengths in order from least to greatest.

Insect	Length (mm)
Fringed Ant Beetle	$2.5 \times 10^{-1}$
Walking Stick	555
Parasitic Wasp	$1.4 \times 10^{-4}$
Elephant Beetle	$1.67 \times 10^2$

6. **MASS** The mass of a grain of salt is about  $10^{-4}$ . About how many grains of salt are in a box that contains  $10^2$  grams of salt? Express your answer using exponents and as a standard number.

7. **MONEY** In 1981, the nation debt was a mere \$ 1,028,729,000,000. Let's approximate that number as  $10^{12}$  dollars. In that same year there were about  $10^7$  people over the age of 16 years old that were employed.

a. If we split the national deficit up to every person over the age 16 that was employed, what would each person owe. Express you answer using exponents and as a standard number.

b. The national debt is now \$14,235,324,504,859. Approximately, how many times bigger is the national debt now, than in 1981?