

**10.5**

# **Reading Scientific Notation**

**Evaluate the expression.**

**1.**  $10^3$

**2.**  $10^{-4}$

**3.**  $10^5$

**4.**  $10^{-2}$

**5.**  $10^{10}$

**6.**  $10^{-5}$



**Distance from Earth to the Sun**

**150,000,000 km**



**Size of Bacterium**

**0.0000625 cm**

# **Scientific Notation**

**This is way of writing very big or small numbers in an easier way.**

150

1,500

15,000

# Scientific Notation

**A number is expressed in scientific notation when it is in the form**

**where  $a$  is \_\_\_\_\_**  
**and  $n$  is an \_\_\_\_\_.**

**Tell whether the number is written in scientific notation. Explain.**

**a.**  $5.9 \times 10^{-6}$

**b.**  $0.9 \times 10^8$

# **Scientific Notation**

**This is way of writing very big or small numbers in an easier way.**

**150,000,000**



# **Something you should know...**

**The relationship between decimals and negative exponents....**

.1

.01

.001

# **Something you should know...**

**The relationship between decimals and negative exponents....**

**.0001**

**.00001**

# **Scientific Notation**

**This is way of writing very big or small numbers in an easier way.**

.062

.0062

.00062

# **Scientific Notation**

**This is way of writing very big or small numbers in an easier way.**

0.0000625

# **Standard Form**

Write the following in standard form:

1)  $2.5 \times 10^3$

2)  $3.94 \times 10^{-4}$

3)  $6.47 \times 10^6$

4)  $7.83 \times 10^{-7}$

5)  $2.5 \times 10^2$

**6) a. Write  $3.22 \times 10^{-4}$  in standard form.**

**b. Write  $7.9 \times 10^5$  in standard form.**

**7) An object with a lesser density than water will float. An object with a greater density than water will sink. Use each given density (in kilograms per cubic meter) to explain what happens when you place a brick and an apple in water.**

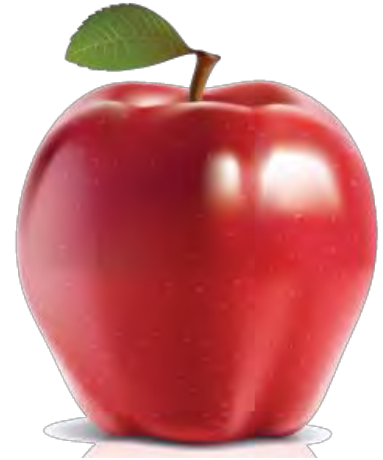
**Water:**  $1.0 \times 10^3$



**Brick:**  $1.84 \times 10^3$



**Apple:**  $6.41 \times 10^2$



8)



**A dog has 100 female fleas. How much blood do the fleas consume per day?**

A female flea consumes about  $1.4 \times 10^{-5}$  liter of blood per day.



# **Scientific Notation**

**Write the following in scientific notation:**

9) 64,830,000,000,000

10) 0.000000000089

11) 118,000,000,000,000

12) 0.00000000000000025

13) 67

**14)** A large corporation purchased a video-sharing website for \$1,650,000,000. Write this number in scientific notation.

- 15) The 2004 Indonesian earthquake slowed the rotation of Earth, making the length of a day 0.00000268 second shorter. Write this number in scientific notation.**

16)



An album has sold 8,780,000 copies. How many more copies does it need to sell to receive the award?

(A)  $1.22 \times 10^{-7}$

(B)  $1.22 \times 10^{-6}$

(C)  $1.22 \times 10^6$

(D)  $1.22 \times 10^7$

An album receives an award when it sells 10,000,000 copies.

- 17)** The table shows when the last three geologic eras began. Order the eras from earliest to most recent.



Era	Began
Paleozoic	$5.42 \times 10^8$ years ago
Cenozoic	$6.55 \times 10^7$ years ago
Mesozoic	$2.51 \times 10^8$ years ago