10.5

Reading Scientific Notation

Evaluate the expression.

1. 10^{3}

2. 10^{-4}

3. 10^{5}

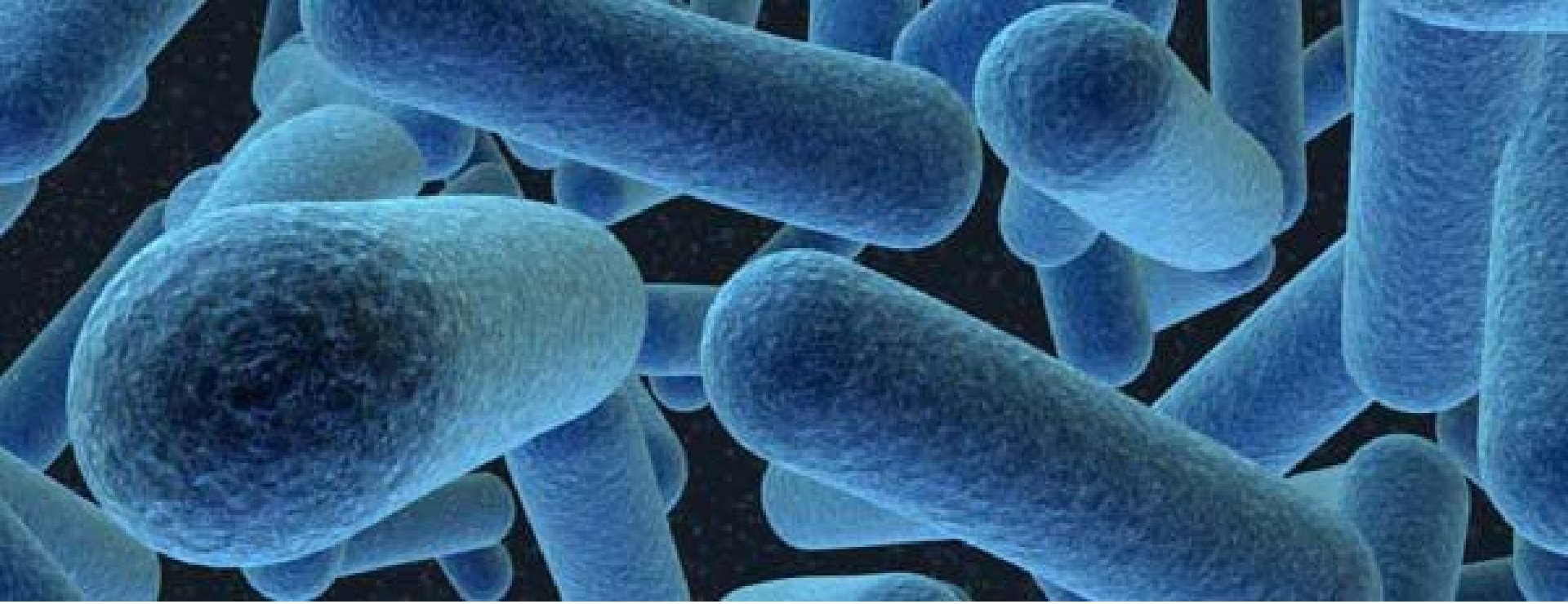
4. 10^{-2}

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.

$$150 = 1.5 \times 100 = 1.5 \times 10^{2}$$

$$1,500 = 1.5 \times 1000 = 1.5 \times 10^{3}$$

$$15,000 = 1.5 \times 10000 = 1.5 \times 10^{4}$$

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. 5.9×10^{-6}

b. 0.9×10^{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….

$$.1 = \frac{1}{10} = \frac{1}{10^1} = 10^{-1}$$

$$.01 = \frac{1}{100} = \frac{1}{10^2} = 10^{-2}$$

$$.001 = \frac{1}{1000} = \frac{1}{10^3} = 10^{-3}$$

Something you should know…

The relationship between decimals and negative exponents….

$$.0001 = \frac{1}{10000} = \frac{1}{10^4} = 10^{-4}$$

$$.00001 = \frac{1}{100000} = \frac{1}{10^5} = 10^{-5}$$

Scientific Notation

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

$$.062 = 6.2 \times .01 = 6.2 \times \frac{1}{100} = 6.2 \times \frac{1}{10^2} = 6.2 \times 10^{-2}$$

$$.0062 = 6.2 \times .001 = 6.2 \times \frac{1}{1000} = 6.2 \times \frac{1}{10^3} = 6.2 \times 10^{-3}$$

$$.00062 = 6.2 \times .0001 = 6.2 \times \frac{1}{10000} = 6.2 \times \frac{1}{10^4} = 6.2 \times 10^{-4}$$

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) 2.5×10^{3}

2) 3.94×10^{-4}

3) 6.47×10^{6}

4) 7.83×10^{-7}

5) 2.5×10^{2}

a. Write 3.22×10^{-4} in standard form.

b. Write 7.9×10^{5} in standard form.

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: 1.0×10^3 **Brick:** 1.84×10^3 **Apple:** 6.41×10^2

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

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