

Name \_\_\_\_\_ Period \_\_\_\_\_ Date \_\_\_\_\_

### Scientific Notation Word Problems

Show all work as you solve the problems. **All final answer must be in correct scientific notation form.**

1. The approximate total surface area of Earth is  $5.1 \times 10^8 \text{ km}^2$ . Salt water has an approximate surface area of  $352,000,000 \text{ km}^2$  and freshwater has an approximate surface area of  $9 \times 10^6 \text{ km}^2$ .
  - a. How much of the Earth's surface is covered by water (salt and fresh combined)?
  
  
  
  
  
  
  
  
  
  
  - b. How much of the Earth's surface is covered by land?
  
  
  
  
  
  
  
  
  
  
  - c. Approximately how many times greater is the Earth's surface area that is covered by water, compared to the amount of the Earth's surface area that is covered by land?
  
2. Suppose there are  $5 \times 10^6$  bacteria in every liter of water. How many bacteria are there in 12 liters of water?
  
  
  
  
  
  
  
  
  
  
3. A TV show had  $3.5 \times 10^6$  viewers for their first episode and  $8.5 \times 10^6$  viewers for their second episode. How many viewers did they have overall?
  
  
  
  
  
  
  
  
  
  
4. In 2013 the Los Angeles Dodgers opening day payroll was about  $\$2.16 \times 10^8$  and the Houston Astros opening day payroll was about  $\$2.4 \times 10^7$ . How much higher was the Dodgers' payroll?
  
  
  
  
  
  
  
  
  
  
5. The population of the United States is  $3 \times 10^8$  and the population of the world is  $7 \times 10^9$ . How many times larger is the population of the world than the U.S.?

Additional Practice:

1. The population of Mathville is  $8.4 \times 10^3$ . The population of Algeville is  $1.3 \times 10^4$ . How many more people are there in Algeville?
2. If the speed of light is  $3 \times 10^8$  meters/second, how many seconds does it take light to reach the Earth, if the sun is  $1.5 \times 10^{11}$  meters from Earth?
3. A factory that has  $6 \times 10^3$  workers makes  $2.4 \times 10^5$  products each day. What is the average amount of products made per worker?
4. In the US, the amount of electricity generated by coal in 2008 was  $1.8 \times 10^{12}$  kWh and  $9 \times 10^{11}$  kWh in 2020. What was the decrease over those 12 years?
5. The volume of Lake Rason is approximately  $2.56 \times 10^5$  km<sup>3</sup>. Lake Rushton is 25 times the volume of Lake Rason. What is the volume of Lake Rushton?
6. The speed of light in cold air is approximately  $3 \times 10^8$  meters/sec. The speed of sound in cold air is approximately  $3 \times 10^2$  meters/sec. The speed of light in cold air is how many times the speed of sound in cold air?
7. There are approximately  $3.1 \times 10^8$  people in the United States. If on average each person has  $4.1 \times 10^1$  coins lying around on dressers, in pockets, in cars, etc., how many total coins do all the people in the U.S. have?
8. The SR-71 "Blackbird" is one of the world's fastest airplanes. It is capable of traveling at a cruising speed of Mach 3, or three times the speed of sound. The speed of sound is approximately  $7.67 \times 10^2$  miles per hour. What is Mach 3 in miles per hour?