Name Key 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 5.1×10^8 km^2. Salt water has an approximate surface area of 352,000,000 km^2 and freshwater has an approximate surface area of 9×10^6 km^2.

   a. How much of the Earth's surface is covered by water (salt and fresh combined)?

   salt fresh
   Total water = $3.52 \times 10^8 + 9 \times 10^6 = (3.52 + 0.09) \times 10^6$

   3.61×10^8 km^2

   b. How much of the Earth's surface is covered by land?

   Total Earth − Total water
   $5.1 \times 10^8 - 3.61 \times 10^8 = 1.49 \times 10^8$

   1.49×10^8 km^2

   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?

   $\frac{\text{Covered w/water}}{\text{Covered w/land}} = \frac{3.61 \times 10^8}{1.49 \times 10^8} = 2.42$

   2.42 times greater

2. Suppose there are 5×10^6 bacteria in every liter of water. How many bacteria are there in 12 liters of water?

   $(5 \times 10^6)(12) = 60 \times 10^6$
   $= 6 \times 10^7$

   6×10^7 bacteria

3. A TV show had 3.5×10^6 viewers for their first episode and 8.5×10^6 viewers for their second episode. How many viewers did they have overall?

   $3.5 \times 10^6 + 8.5 \times 10^6 = 12 \times 10^6$
   $= 1.2 \times 10^7$

   1.2×10^7 viewers

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?

   $2.16 \times 10^8 - 2.4 \times 10^7$
   $2.16 \times 10^8 - 0.24 \times 10^8 = 1.92 \times 10^8$

   $\$1.92 \times 10^8$

5. The population of the United States is 3×10^8 and the population of the world is 7×10^9. How many times larger is the population of the world than the U.S.?

   $\frac{7 \times 10^9}{3 \times 10^8} = 2.33 \times 10^1$

   The population of the world is 2.33×10^1 times that of the U.S.