

## **M/J Grade 8 Pre-Algebra Homework 9**

**Perform the operation; round using significant digits:**

- 1. A gram of soil contains roughly  $2.5 \times 10^7$  bacteria. If a researcher collected  $1.2 \times 10^3$  grams of soil, how many bacteria did they likely collect?**
- 2. The time it takes for a computer processor to execute a basic instruction is  $2.5 \times 10^{-9}$  seconds. If a computer runs for  $3.6 \times 10^3$  seconds, how many basic instructions can it execute during this time?**

- 3. A certain drug has a recommended dosage of  $5 \times 10^{-4}$  grams per kilogram of body weight. How much of the drug should be administered to a patient weighing  $7.0 \times 10^1$  kg?**
- 4. A chemical reaction releases energy at a rate of  $4.8 \times 10^{-19}$  joules per molecule. If the reaction involves  $1.2 \times 10^{23}$  molecules, how much total energy is released?**