Lesson Practice

Choose the correct answer.

1. One microgram is equal to $1 \times 10^{-6}$ gram. If the mass of a substance is $8 \times 10^9$ micrograms, what is its mass in grams?
   
   A. $1.25 \times 10^{-13}$ gram  
   B. $1.25 \times 10^{-1}$ gram  
   C. $8 \times 10^9$ grams  
   D. $8 \times 10^{15}$ grams

2. A rectangular section of land made up of wheat farms has a length of $5 \times 10^5$ meters and a width of $6 \times 10^3$ meters. What is the area of the land in square meters?
   
   A. $3 \times 10^6$ square meters  
   B. $3 \times 10^7$ square meters  
   C. $3 \times 10^8$ square meters  
   D. $3 \times 10^{12}$ square meters

3. A microscope is set so it makes an object appear $4 \times 10^2$ times larger than its actual size. A virus has a diameter of $2 \times 10^{-7}$ meter. How large will the diameter of the virus appear when it is viewed under the microscope?
   
   A. $8 \times 10^{-14}$ meter  
   B. $8 \times 10^{-5}$ meter  
   C. $8 \times 10^{-4}$ meter  
   D. $8 \times 10^5$ meters

4. Neptune is approximately $5 \times 10^4$ kilometers in diameter. Mars is approximately $7 \times 10^3$ kilometers in diameter. Which is an accurate comparison of the diameters of these two planets?
   
   A. The diameter of Neptune is more than 7 times greater than the diameter of Mars.  
   B. The diameter of Mars is more than 7 times greater than the diameter of Neptune.  
   C. The diameter of Neptune is about 1.4 times greater than the diameter of Mars.  
   D. The diameter of Mars is about 1.4 times greater than the diameter of Neptune.

5. A box contains $5 \times 10^1$ paper clips. The mass of each paper clip in the box is $8 \times 10^{-4}$ kilogram. What is the combined mass of the paper clips in the box?
   
   A. 4 kilograms  
   B. 40 kilograms  
   C. $4 \times 10^7$ kilograms  
   D. $4 \times 10^{-7}$ kilograms

6. The head of a pin has a diameter of $1 \times 10^{-4}$ meter. A bacterium has a diameter of $5 \times 10^{-7}$ meter. How many bacteria that size would fit across the diameter of the pinhead?
   
   A. 2  
   B. 20  
   C. 200  
   D. $2 \times 10^{11}$
7. The population of Canada is approximately $3 \times 10^7$. The population of Mexico is approximately $1 \times 10^8$. Which statement accurately compares the populations of Canada and Mexico?

A. The population of Canada is more than 30 times greater than the population of Mexico.
B. The population of Mexico is more than 30 times greater than the population of Canada.
C. The population of Canada is more than 3 times greater than the population of Mexico.
D. The population of Mexico is more than 3 times greater than the population of Canada.

8. One nanometer is equivalent to $1 \times 10^{-7}$ meters. Which is equivalent to 0.3 nanometers?

A. $-3 \times 10^{10}$ meters
B. $-3^{10}$ meters
C. $3 \times 10^{-9}$ meter
D. $3 \times 10^{-10}$ meter

9. A rectangular yard has a length of 0.006 kilometer and a width of $5 \times 10^{-3}$ kilometer.

A. Use scientific notation to express the area of the yard in square kilometers, showing each step in the process.

B. Convert the area into square meters using the conversion below.

\[1 \text{ square kilometer (km}^2) = 1 \times 10^6 \text{ square meters (m}^2)\]

Give your answer in standard form. Which unit is a better choice for measuring the area of the yard, and why?