P.S. #2.1 - Understanding Scientific Notation

Name: _____ Class: _____

Explain the meaning of each number below.

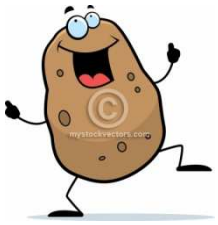
1.) 10^5 2.) 10^{-3} 3.) 10^0

4.) Explain why $3.72 \cdot 10^3$ is equivalent to 3720.

5.) Explain why $5.9 \cdot 10^{-4}$ is equivalent to 0.00059

Tell whether each number is written correctly in scientific notation. If incorrectly written, state the reason.

6.) $71 \cdot 10^{22}$ 7.) $8 \cdot 10^{-4}$



8.) $0.99 \cdot 10^{-4}$ 9.) $1.2 \cdot 10^4$

Write each number in standard form.

10.) $7.36 \cdot 10^3$ 11.) $5.27 \cdot 10^{-2}$

12.) $1.9 \cdot 10^4$ 13.) $9.61 \cdot 10^{-1}$

14.) $4.23 \cdot 10^{-3}$ 15.) $1.89 \cdot 10^0$

Write each number in scientific notation.

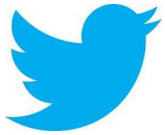
16.) 0.0073 17.) 2800

18.) 4 19.) 0.0005

20.) 56.9 21.) 0.00000761

22.) In 2000, Americans consumed an average of 47.2 pounds of potatoes and $5.936 \cdot 10^2$ pounds of dairy products per person. Did Americans consume more potatoes or dairy products?

23.) An actor has 75,126 fans on a social network. A musician has $8.58 \cdot 10^4$ fans. Who has more fans on the social network?



24.) The average diameter of a type of round shaped bacteria is 0.0000037 meter. The spacing between two of these bacteria is $2.1 \cdot 10^{-9}$ meter. Which is lesser?

25.) The table shows population data for some countries. Write each population in scientific notation.

Country	Population
Brazil	190,000,000
Singapore	5,100,000
Monaco	35,000
Fiji	861,000

Brazil: _____

Singapore: _____

Monaco: _____

Fiji: _____

26.) Human blood contains red blood cells, white blood cells, and platelets. The table shows the approximate diameters of each of these cells in meters. Write each diameter in scientific notation.

Type of Cell	Diameter (m)
Red blood cell	0.000007
White blood cell	0.00000233
Platelet	0.0000025

Red blood cell: _____

White blood cell: _____

Platelet: _____

27.) A technician reads and records the air pressure from several pressure gauges.

Pressure Gauge	Air Pressure (Pa)
A	210,000
B	$5.2 \cdot 10^5$
C	170,000

a.) Which pressure gauge has the greatest reading? _____

b.) Which pressure gauge has the lowest reading? _____

c.) The atmospheric pressure when these readings were made was $1.1 \cdot 10^5$ pascals. Which gauge(s) showed a reading greater than the atmospheric pressure?

28.) An object has a mass of $4.8 \cdot 10^{-5}$ g. What could the object be? Explain your reasoning.

29.) An object has an area of $3.8 \cdot 10^9 \text{ km}^2$. What could the object be? Explain your reasoning.

30.) When a number between 0 and 1 is written in scientific notation, what type of an exponent will the base of 10 have? Explain your answer.

31.) Which expression represents $\frac{1}{16}$ in exponential notation?

(A) 4^2 (B) 4^{-2} (C) 8^2 (D) 8^{-2}