## P.S. #2.5 - Word Problems with Scientific Notation

Nar	ne: _		Class:				
	*Befo	ore you start working: Yes, this is difficult, b	ut yes, you can do it. You must <b>pe</b>	rsevere.*			
1.)	A fli	etween					
	Sing	papore and Hawaii is about $6.7 \times 10^3$ miles.	The distance between New York ar	between New York and Hawaii is			
	abou	ut $4.9 \times 10^3$ miles.		$\bigcirc$ $\bigcirc$			
	a.)	Find the total distance from Singapore to N	New York in scientific notation.	2000			
		Operation:		350			

b.) How much longer is the flight from Singapore to Hawaii than the flight from New York to Hawaii?

Operation: \_\_\_\_\_

- 2.) A rectangular section of land made up of wheat farms has a length of  $5 \cdot 10^4$  meters and a width of  $6 \cdot 10^3$  meters. What is the area of the land in square meters? **Operation:** 
  - (A)  $3 \cdot 10^6$  (B)  $3 \cdot 10^7$  (C)  $3 \cdot 10^8$  (D)  $3 \cdot 10^{12}$

3.) Add 190,000,000 to  $2.6 \cdot 10^7$ . Express your answer in scientific notation.

4.) The 2010 population of India was about  $1.16 \times 10^9$  people. The 2010 population of the United States was about  $3.1 \times 10^8$  people. About how many more people lived in India than in the United States in 2010? **Operation:** 

- 5.) The population of Canada is approximately 3·10<sup>7</sup>. The population of Mexico is approximately 1·10<sup>8</sup>. Which statement accurately compares the populations of Canada and Mexico?
   Operation: \_\_\_\_\_\_
  - (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.
- 6.) The approximate area of the continent of Australia is  $9 \cdot 10^6$  square kilometers. The area of the continent of Antarctica is about  $1.37 \cdot 10^7$  square kilometers.
  - a.) Find the approximate sum of the land areas of the two continents.**Operation:** \_\_\_\_\_\_

b.) What is the difference in the areas of the two continents?Operation: \_\_\_\_\_\_

7.) Angora wool, obtained from rabbits, has fibers with a diameter of about 1 · 10<sup>-6</sup> meter.
 Cashmere, obtained from goats, has fibers with a diameter of about 1.45 · 10<sup>-5</sup> meter. How much wider is the cashmere fiber than the angora fiber?
 Operation: \_\_\_\_\_\_

8.) If something grows at a rate of 8.4 · 10<sup>-5</sup> inches per year, how long will it be after it grows for 9.1 · 10<sup>7</sup> years?
Operation: \_\_\_\_\_\_

- 9.) One microgram is equal to 1 X 10<sup>-6</sup> grams. If the mass of a substance is 8 X 10<sup>9</sup> micrograms, what is its mass in grams? **Operation:** 
  - (A) 1.25 X 10<sup>-15</sup> grams
  - (B) 1.25 X 10<sup>-3</sup> grams
  - (C)  $8 \times 10^3$  grams
  - (D) 8 X 10<sup>15</sup> grams

- 10.) A microscope is set so it makes an object appear 4 X 10<sup>2</sup> times larger than its actual size. A virus has a diameter of 2 X 10<sup>-7</sup> meters. How large will the diameter of the virus appear when it is viewed under the microscope? **Operation:** \_\_\_\_\_\_
  - (A) 8 X 10<sup>-14</sup> meters
  - (B) 8 X 10<sup>-5</sup> meters
  - (C) 8 X 10<sup>-4</sup> meters
  - (D) 8 X 10<sup>5</sup> meters
- 11.) A box contains 5 X 10<sup>3</sup> paper clips. The mass of each paper clip in the box is 8 X 10<sup>-4</sup> kilogram.
  What is the combined mass of the paper clips in the box? **Operation:**
  - (A) 4 kilograms
  - (B) 40 kilograms
  - (C)  $4 \times 10^7$  kilograms
  - (D) 4 X 10<sup>-7</sup> kilograms
- 12.) The average distance from Pluto to the Sun is about 6 X 10<sup>9</sup> kilometers. The average distance from Mars to the Sun is 2 X 10<sup>8</sup> kilometers. The average distance form Pluto to the Sun is about how many times as great as the average distance from Mars to the Sun?

Operation: \_\_\_\_\_

## Answers:

1.)	a.) 1.16 · 10 <sup>4</sup> mi.	b.)	$1.8\cdot10^3$ mi	2.)	С	3.)	$2.16 \cdot 10^{8}$	4.)	$8.5 \cdot 10^8$ people
5.)	D	6.)	a.) 2.27 · 10 <sup>7</sup> sq. km	ı.	b.) 4.7·10	<sup>6</sup> sq	ı. km	7.)	1.35·10 <sup>-5</sup> m
8.)	7.644 · 103 in	9.)	С	10.	.) B	11.	) A	12.)	) 30 times