## P.5. \#2.5-Word Problens with Scientific hotertion

Name: $\qquad$ Class: $\qquad$
*Before you start working: Yes, this is difficult, but yes, you can do it. You must persevere.*
1.) A flight from Singapore to New York includes a stopover at Hawaii. The distance between Singapore and Hawaii is about $6.7 \times 10^{3}$ miles. The distance between New York and Hawaii is about $4.9 \times 10^{3}$ miles.
a.) Find the total distance from Singapore to New York in scientific notation. Operation: $\qquad$

b.) How much longer is the flight from Singapore to Hawaii than the flight from New York to Hawaii? Operation: $\qquad$
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: $\qquad$
(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: $\qquad$
5.) The population of Canada is approximately $3 \cdot 10^{7}$. The population of Mexico is approximately $1 \cdot 10^{8}$. Which statement accurately compares the populations of Canada and Mexico?

## Operation:

$\qquad$
(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: $\qquad$
b.) What is the difference in the areas of the two continents?

## Operation:

$\qquad$
7.) Angora wool, obtained from rabbits, has fibers with a diameter of about $1 \cdot 10^{-6}$ meter. Cashmere, obtained from goats, has fibers with a diameter of about $1.45 \cdot 10^{-5}$ meter. How much wider is the cashmere fiber than the angora fiber?

## Operation:

$\qquad$
8.) If something grows at a rate of $8.4 \cdot 10^{-5}$ inches per year, how long will it be after it grows for $9.1 \cdot 10^{7}$ years?

## Operation:

$\qquad$
9.) One microgram is equal to $1 \times 10^{-6}$ grams. If the mass of a substance is $8 \times 10^{9}$ micrograms, what is its mass in grams? Operation: $\qquad$
(A) $1.25 \times 10^{-15}$ grams
(B) $1.25 \times 10^{-3}$ grams
(C) $8 \times 10^{3}$ grams
(D) $8 \times 10^{15}$ grams
10.) 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 $2 \times 10^{-7}$ meters. How large will the diameter of the virus appear when it is viewed under the microscope? Operation: $\qquad$
(A) $8 \times 10^{-14}$ meters
(B) $8 \times 10^{-5}$ meters
(C) $8 \times 10^{-4}$ meters
(D) $8 \times 10^{5}$ meters
11.) A box contains $5 \times 10^{3}$ 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? Operation: $\qquad$
(A) 4 kilograms
(B) 40 kilograms
(C) $4 \times 10^{7}$ kilograms
(D) $4 \times 10^{-7}$ kilograms
12.) The average distance from Pluto to the Sun is about $6 \times 10^{9}$ kilometers. The average distance from Mars to the Sun is $2 \times 10^{8}$ 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: $\qquad$

## Answers:

1.) a.) $1.16 \cdot 10^{4} \mathrm{mi}$.
b.) $1.8 \cdot 10^{3} \mathrm{mi}$
2.) C
3.) $2.16 \cdot 10^{8}$
4.) $8.5 \cdot 10^{8}$ people
5.) $D$
6.) a.) $2.27 \cdot 10^{7} \mathrm{sq}$. km .
b.) $4.7 \cdot 10^{6}$ sq. km
7.) $1.35 \cdot 10^{-5} \mathrm{~m}$
8.) $7.644 \cdot 10^{3}$ in
9.) C
10.) B
11.) A
12.) 30 times

