**Scientific Notation Classwork #3**

**Word Problems- Calculator Active**

1. A company has $5×10^{4}$ square feet of office space. Another company has $8×10^{3}$ square feet of office space. About how many times greater is the larger company’s space than the smaller company’s space?

2. A microgram is equal to $1×10^{-6}$  grams. How many times greater than a microgram is

$1×10^{2} $grams?

3. The speed of light is approximately$ 3×10^{8}$ meters per second. While solving a problem, Cara used $3×10^{10}$ meters per second for the speed of light and got the incorrect answer. By which factor should Cara multiply her answer in order to get the correct answer?

A. $10^{-18}$ B. $10^{-2}$ C. $ 10^{2}$ D. $10^{18}$

4. Two have a good harvest a farmer must plant $2.4 ×10^{3}$ seeds per square yard. If the field he is sowing is $3.5 ×10^{12}$ square yards, how many seeds will the farmer need?

5. The diameter of Jupiter is approximately $9×10^{4}$ miles. The diameter of Earth is approximately

$8×10^{3}$ miles. Approximately how many times the diameter of Earth is the diameter of Jupiter?

6. Canada has $3.36 ×10^{7}$ people. The United States has a population of $3.24 ×10^{8}$. Mexico has a population of $1.23 ×10^{8}$. How many people live in North America?

7. A virus has a diameter of about 2.0 × 10–8 mm. A bacteria has a diameter of about 2.0 × 10–6 mm. How does the size of the bacteria compare to the size of the virus?

8. Sam is 1.75 meters tall. His pet turtle is 1.6 × 10–1 meters tall. ***About*** how many times taller is Sam than his turtle?

9. The population of the town of Fair Bluff is approximately 9.8 × 104.The population of Tabor City is approximately 2.5 × 104. ***About*** how many times larger is Fair Bluff than Tabor City?

10. The mass of Earth’s moon is approximately $7×10^{22}$   kilograms. The mass of Venus is approximately $5×10^{24}$  kilograms. The mass of Venus is about how many times greater than the mass of Earth’s moon?

11. A sheet of plywood is $1.34 ×10^{-4}$ feet thick. How tall is a stack of 400 sheets of plywood?

12. In 1974, a computer could complete $3×10^{8}$ computations per second. In 2011, a computer could complete$1×10^{16}$ computations per second. Which number is closest to how many times faster the 2011 computer is than the 1974 computer?

A. 1/3 B. 3 C. 3,000 D. 30,000,000

13. California has population of $3.92 ×10^{7}$. North Carolina has a population of $1.01 ×10^{7}$. How many more people are in California than North Carolina?

14. An adult red panda weighs about 5.0 × 103 grams. An adult giant panda weighs about

1.5 × 105 grams. ***About*** how many times larger is the giant panda than the red panda?

15. According to the 2010 national census, the total population of the United States was approximately  $3×10^{8}$ people. The total population of a town was approximately $1×10^{4}$ people. The population of the United States was how many times greater than the population of the town?

16. The speed of sound at a certain temperature is approximately $1×10^{3}$ feet per second. A snail moves at approximately$4×10^{-2}$  feet per second. Which expression shows how many times faster the snail will have to travel to move at the speed of sound?

A.$\frac{10^{-2}}{10^{3}}$ B. $\frac{10^{3}}{10^{-2}}$ C.$ \frac{4 × 10^{-2}}{1 × 10^{3}}$ D.$ \frac{1 × 10^{3}}{4 × 10^{-2}}$

17. The distance from Earth to the Sun is approximately $9×10^{7}$ miles. The distance from Earth to the moon is approximately $2×10^{5}$ miles. Approximately how many times the distance from the Earth to the Moon is the distance from Earth to the Sun

18. The mass of the Earth is$ 3×10^{-6}$ times the mass of the Sun. If the mass of the Sun is

$2×10^{30}$ kilograms, what is the mass of the Earth, in kilograms?

19. The area of the Pacific Ocean is about $6.0061×10^{7}$   square miles. The area of the Southern Ocean is about $7.8483×10^{6}$   square miles. Approximately how many times larger is the area of the Pacific Ocean than that of the Southern Ocean?

20. The speed of light is about 3.0 x 108 meters per second. The speed of sound at sea level is about 3.0 x 102 meters per second. ***About*** how many times faster is the speed of light than sound?

21. The average distance of Mercury from the Sun is about $5.79×10^{7}$ kilometers (km). The average distance of Jupiter from the Sun is about 13 times the distance of Mercury from the Sun. What is the approximate average distance of Jupiter from the Sun, in km?

22. The populations of two towns, town A and town B, are being compared. The population of town A is $4×10^{4}$  and the population of B is $2×10^{5}$  How many times greater is the population of town B than town A?

23. A book is about 9.3 × 10–2 meters thick. A bookshelf is about 1.865 × 101 meters long. ***About*** how many copies of this book will fit on the bookshelf?

24. In 2008, a computer software company had approximately 1.4 × 106 dollars in revenue. In 2010, the company’s revenue was approximately 1.2 × 108 dollars. About how many times more revenue did the company make in 2010 than in 2008?

25. The diameter of a carbon atom is about 1.0 x 10–10 meters. The diameter of a hydrogen atom is about 5.3 x 10–11 meters. ***About*** how many times larger is the diameter of the carbon atom than the diameter of the hydrogen atom?

26. The population of Griffin is about 4.8 × 103. The population of Oakdale is about

1.9 × 105. ***About*** how many times larger is the population of Oakdale than Griffin?

27. If there are $2.4 ×10^{3}$ carp fish per square mile and the Mississippi River is $1.25 ×10^{6}$ square miles, how many carp are in the Mississippi River?

28. The number of fish in Lake Bass is about 1.2 × 106. The number of fish in Lake Simon is about

6 × 103. How much larger is the number of fish in Lake Bass than the number of fish in Lake Simon?

29. The mass of two objects is being compared during a physics experiment. It is determined that object A has a mass of $4×10^{-3}$  and object B has a mass of $4×10^{-4}$.  How many times larger is the mass of object A than the mass of object B?

30. The population of City M is about 3.3 × 105. The population of City N is about $1.7×10^{6}$. Approximately how many times larger is the population of City N than the population of City M?

31. The distance from the Sun to Earth is 1.6 × 1011meters and the distance from Mars to Earth is 5.5 × 1010meters. About how many times farther is the distance from the Sun to Earth than the distance from Mars to Earth?

32. The population of the United States is approximately $3×10^{8}$ people. The population of Germany is approximately $8×10^{7}$ people. Which statement about the populations of these countries is true?

A. The population of Germany is almost 3 times the population of the United States

B. The population of Germany is almost 4 times the population of the United States

C. The population of the United States is almost 3 times the population of Germany

D. The population of the United States is almost 4 times the population of Germany