Directions: Show all of your work on the following problems. Include all units throughout the problem, and use correct significant figures on every question! Given: $(1$ gallon $=4$ quarts $)(1$ quart $=946 \mathrm{~mL})(1 \mathrm{mile}=5,280 \mathrm{ft})$ $(1 \mathrm{ft}=12 \mathrm{in})(1 \mathrm{in}=2.54 \mathrm{~cm})(3600$ seconds $=1$ hour $)(3.785 \mathrm{~L}=1$ gal $)(1$ gal $=4$ quarts $)(1$ quart $=2$ pints $)(1$ pint $=$ 2 cups $)(1$ day $=24$ hours $)(1$ quart $=946 \mathrm{~mL})(1$ ounce $=28.3$ grams $)$

When working the test reviews - it is recommended that you work the review at least a few days before the test without the help of the textbook, internet, notes or friends. Then, check your answers to find out what concepts you should focus more on when studying. Finally, come in before or after school with questions. If you are really struggling with the concepts in the chapter then try using all of your resources to help you work the review first and then work it a second time without the help of any resources (notes, textbook, internet, etc.). Just looking at the answers will not help you prepare for the test!

1. If a substance has a mass of 88 grams, and its density is $1.5 \mathrm{~g} / \mathrm{mL}$, what is the volume of this material?
2. If a solid has a density of 3.6 grams $/ \mathrm{mL}$., and has a volume of 60 mL ., what is the mass of this substance?
3. Change 0.5 kilograms to milligrams.
4. Convert 42,800,000 hectoliters to centiliters.
5. Convert 5,602,000 micrograms to kilograms.
6. Convert 0.5 gallon to milliliters.
7. Find the number of pm if there are there in 6.51 miles.
8. Convert 20 miles/hour to inches/second.
9. Change 65 liters/second to cups/day.
10. *Solve for $\mathbf{H}$ using the formula $\mathrm{QH} / \mathrm{Y}=\mathrm{A} / \mathrm{CN}$.
11. *Solve for $\mathbf{M}$ using the formula $\mathrm{AB} / \mathrm{M}=\mathrm{CD} / \mathrm{K}$.
12. An object has a density of $0.790 \mathrm{~g} / \mathrm{cm}^{3}$. Find the mass (in grams) of 3.4 pints of this object.
13. State how many significant figures each of the following has:
a. 0.005780 $\qquad$ b. $2,500,140$ $\qquad$
c. 450.00 $\qquad$ d. $780,000.0$ $\qquad$
e. 0.00025700 $\qquad$ f. 2,250 $\qquad$
14. Round each of the numbers below to 3 significant figures and put in scientific notation.
a. 0.005780 $\qquad$ b. $2,508,140$ $\qquad$
c. 450.00 $\qquad$ d. 780,000.0 $\qquad$
e. 0.00025759 $\qquad$ f. 2,000 $\qquad$
15. Solve using correct significant figures.
a. $0.0000358 / 739,190$
b. $12,024.099+998,088.1$
c. $(302.532+4.50) \times(456.00-19383)$
d. $(505.8-6.97) \div(45.8+67.82)$
16. Convert $455^{\circ} \mathrm{C}$ to kelvin.
17. Convert 79.5 Kelvin to Celsius.
18. Determine the volume of a room (include the correct number of significant figures) if its length width and height are 15.4 feet by 9.0 feet by 10.5 feet.
19. Suppose a student adds water to a graduated cylinder (shown in the picture - units are mL ) and then adds a metal cylinder to the graduated cylinder (left) and ring to the graduated cylinder (right).
a. Make a data table that would be used in the lab for this experiment. (Hint: data tables should always have a title)
b. Determine the volume of the metal cylinder \& the ring that were added to the graduated cylinder.

20. Convert $4.9 \times 10^{19}$ liters/second to $\mathrm{in}^{3} /$ day.
21. *If the density of an object is $12.7 \mathrm{~g} / \mathrm{cm}^{3}$ then determine the mass (in ounces) of 5.5 decaliters of the object.
22. a. The SI prefix corresponding to a factor of $10^{-9}$ is $\qquad$ .
b. The SI prefix corresponding to a factor of $10^{6}$ is $\qquad$ .
23. Write out the metric conversions Tera through Pico from memory below including the prefix with its abbreviation and the power of 10 that corresponds to that prefix.
24. Vocabulary \& lab safety

Word Bank: Measurement, Scientific notation, Units, SI unit, Vertical, Volume, Mass, Horizontal, Significant figures, Conversion factor, Diagonal, Dimensional analysis, Density.
a. $\qquad$ - International System of units based on the metric system and on units derived from the metric system
b. Carry glass tubing, especially long pieces, in a $\qquad$ position to minimize the likelihood of breakage and injury.
25. 1 kilogram $=$ $\qquad$ milligrams
a) $10^{3}$
b) $10^{6}$
c) $10^{-6}$
d) $10^{4}$
e) $10^{-4}$
26. Tell if the following is accurate, precise, both or neither.


## The Test Format

Most tests in CP1 are about $50 \%$ exam soft (multiple choice, vocab, true false...) and $50 \%$ free response on paper.
For every test, on the multiple choice part 10 points will be vocabulary \& lab safety. The vocabulary words come from the vocabulary list (on the left side of Topics on MoeCampus). A work bank is provided (spelling does count), and the definition is the exact definition from the textbook. There are one or two lab safety questions on every test. They come from the lab safety contract that you and your parents signed at the beginning of the school year.

When labs are completed throughout the year, expect to have at least one question related to the lab on that test. Know the general procedure of the lab, know the purpose of the lab, and be able to answer conceptual questions related to the lab. Also, know the name of each piece of lab equipment that we use and its purpose!!

A chapter summary may be turned in on test day to earn points back on the test. See Topics - Important Documents for the expectations of a chapter summary and to see an example.

Answers: Only check the answers only after you have completed the review. All answers have correct significant figures. Practice is important to help you understand what you need to focus on when studying.

1. 59 mL
2. 200 g
3. $5 \times 10^{5} \mathrm{mg}$
4. $4.28 \times 10^{11} \mathrm{cL}$
5. $5.602 \times 10^{-3} \mathrm{~kg}$
6. 2000 mL
7. $1.05 \times 10^{16} \mathrm{pm}$
8. $400 \mathrm{in} /$ second
9. $2.4 \times 10^{7}$ cups/day
10. $\mathrm{H}=\mathrm{AY} / \mathrm{CNQ}$
11. $M=K A B / C D$
12. 1300 g
13. a. 4 b. 6 c. 5 d. 7 e. 5 f. 3
14. a. $5.78 \times 10^{-3}$ b. $2.51 \times 10^{6}$ c. $4.50 \times 10^{2}$ d. $7.80 \times 10^{5}$ e. $2.58 \times 10^{-4}$ f. $2.00 \times 10^{3}$
15. a. $4.84 \times 10^{-11}$ b. $1,010,112.2$ c. $-5,811,200$ d. 4.391
16. 728 Kelvin
17. $-193.5^{\circ} \mathrm{C}$
18. $1500 \mathrm{ft}^{3}$
19.     - 

|  | Metal Cylinder | Ring |
| :---: | :---: | :---: |
| Volume before $(\mathbf{m L})$ | 18.9 | 63.9 |
| Volume after $(\mathbf{m L})$ | 29.0 | 68.0 |
| Volume of object $(\mathbf{m L})$ | 10.1 | 4.1 |

20. $2.6 \times 10^{26} \mathrm{in}^{3} /$ day.
21. 25,000 ounces.
22. a. nano ( n ), b. mega ( M ).
23. $10^{12}=1$ tera- $(\mathrm{T}-), 10^{9}=1$ giga- $(\mathrm{G}-), 10^{6}=1$ mega- $(\mathrm{M}-), 10^{3}=1$ kilo- $(\mathrm{k}-), 10^{2}=1$ hecto- $(\mathrm{h}-), 10^{1}=$ 1 deca- (da-), $10^{-1}=1$ deci- ( $\mathrm{d}-$ ), $10^{-2}=1$ centi- ( $\mathrm{c}-$ ), $10^{-3}=\quad 1$ milli- ( m -), $10^{-6}=1$ micro- ( $\mu-$ ), $10^{-9}=$ 1 nano- ( n -), $10^{-12}=1$ pico- ( p -)
24. a. SI unit, b. Vertical.
25. b) $10^{6}$
26. 



See MoeTube "102 Chapter 2 Review" for an explanation of each answer above. This should only be used to check the work for those that you did not get correct when workign the review.

