

# AP Physics Summer assignment:

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Legacy High School

When you start AP Physics C there are three skills that you will be expected to have mastered. On the first day of class we will have our first test covering these skills. Be sure you are able to complete these types of problems before the first day of class. If you have questions; review then contact Mr. Mariea or Mrs. Marx by email. The three skills needed are:

- 1.) Conversions of units within the metric system
- 2.) Algebra: to solve for unknown variable
- 3.) Solving right triangles

Science uses the Metric system (**SI**: System Internationale). The units used for physics are mass(kg), length(m), time(s). The equations in physics depend on unit agreement. You will be required to convert to and from these units from other metric units. You will be expected to convert the following types of problems.

- |                           |            |                            |            |
|---------------------------|------------|----------------------------|------------|
| a. 4008 g                 | = _____ kg | f. 2.65 mm                 | = _____ m  |
| b. 1.2 km                 | = _____ m  | g. 8.23 m                  | = _____ km |
| c. 823 nm                 | = _____ m  | h. 40.0 cm                 | = _____ m  |
| d. 0.77 m                 | = _____ cm | i. $6.23 \times 10^{-7}$ m | = _____ nm |
| e. $8.8 \times 10^{-8}$ m | = _____ mm |                            |            |

## Algebra

Solve  $v^2 = v_0^2 + 2ad$  for  $a$

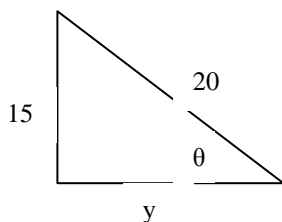
Solve  $K = \frac{mv^2}{2}$  for  $m$ .

Solve  $F = \frac{GMm}{r^2}$  for  $r$

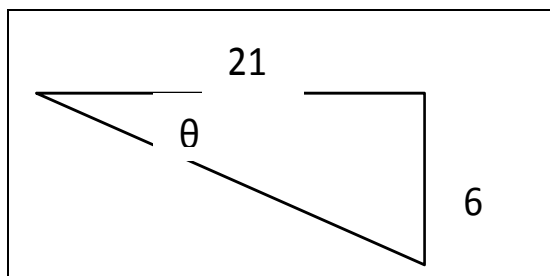
Solve  $x = vt + at^2/2$  for  $v$

## Solving right triangles

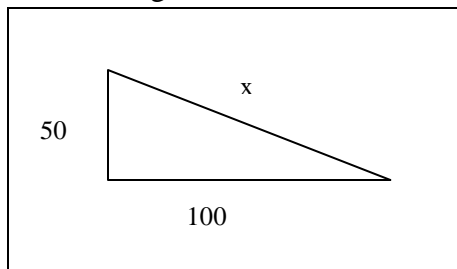
In the triangle below solve for  $y$ .



In the triangle below solve for  $\theta$ .



In the triangle below solve for  $x$ .



In the triangle below solve for  $\theta$ .

