

THE SOLUTION OF A PHYSICS PROBLEM IS AN ESSAY ABOUT THE UNIVERSE!

Read the entire problem several times to understand what is asked

Write out the problem (a summary will do)

DRAW the physical situation (if applicable)

Begin by **writing down the general law** to apply ... e.g. $\Sigma F = ma$

Write down each general law you use (+ math identities)

... e.g. "by the chain rule, $\frac{dy}{dt} = \frac{\partial y}{\partial x} \frac{\partial x}{\partial t}$ "

Solve algebraically (NO NUMBERS SUBSTITUTED!!) for unknown

The symbols carry more information than numbers, substitution of numbers hides the physical information as though you've painted over a sign. Isolate what you want to know on the left side of the equal sign. If you're finding velocity from the kinetic energy, E , write:

$$v = \sqrt{\frac{2E}{m}}$$

Substitute numerical values (if necessary) and calculate as *THE LAST STEP*