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# Physics Club

— Meeting Trois —

2/8/2017

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# General Information

## ELECTIONS TODAY!!!

### Positions Available:

- ❖ Secretary
- ❖ Student Council Representative

## NEW FEATURES!!!

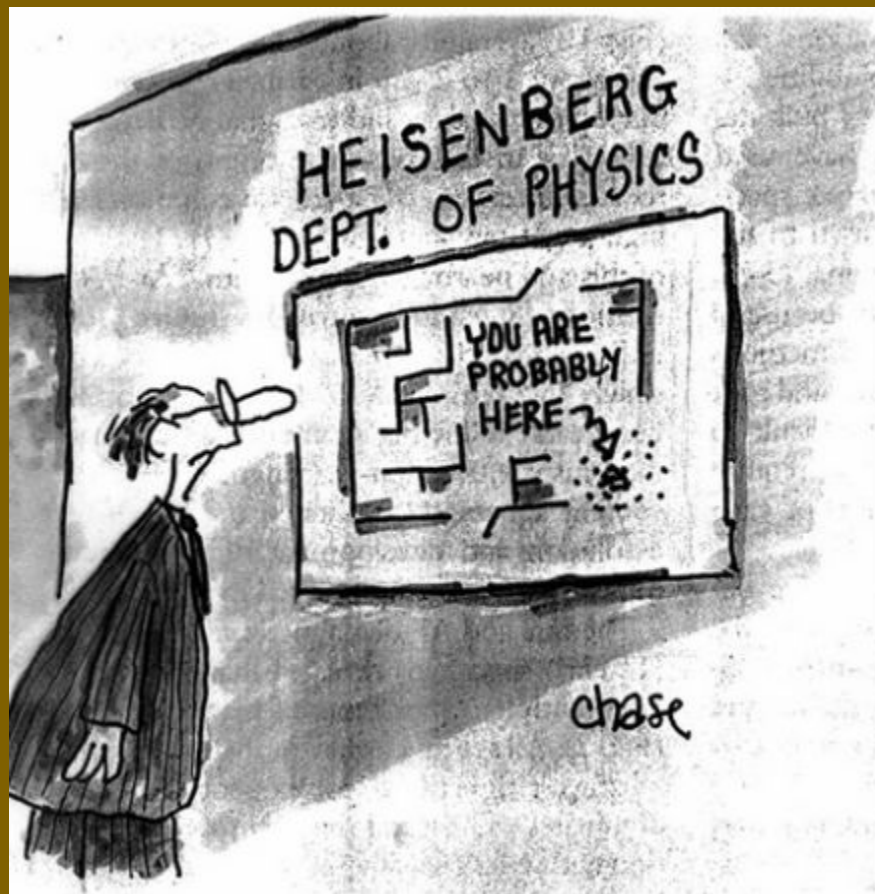
- ❖ Club Presentation Folder
- ❖ Additional Problem Sets
- ❖ Website Under Construction

I caught our son  
sticking a key in an  
electrical outlet  
today. He was so  
shocked that I  
grounded him.



somee cards  
user card

<<<<< ELECTIONS >>>>>



# The Lagrangian!!!!

Overview: The Lagrangian  $L$  is the kinetic energy minus the potential energy:  $L = K - V$

It satisfies these equations, called the Euler-Lagrange equations:

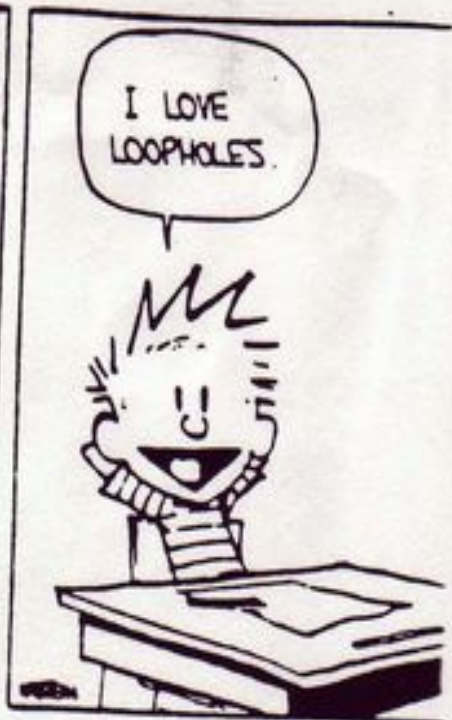
$$\text{Lagrange's equations (Second kind)}$$
$$\frac{d}{dt} \left( \frac{\partial L}{\partial \dot{q}_j} \right) = \frac{\partial L}{\partial q_j}$$

Where  $q_i$  are the various variables you are trying to solve for.

# Two springs

Two springs are connected in series, with one spring of spring constant  $k_1$  and the other with spring constant  $k_2$ . Find the equivalent spring constant of the two springs, using the lagrangian.

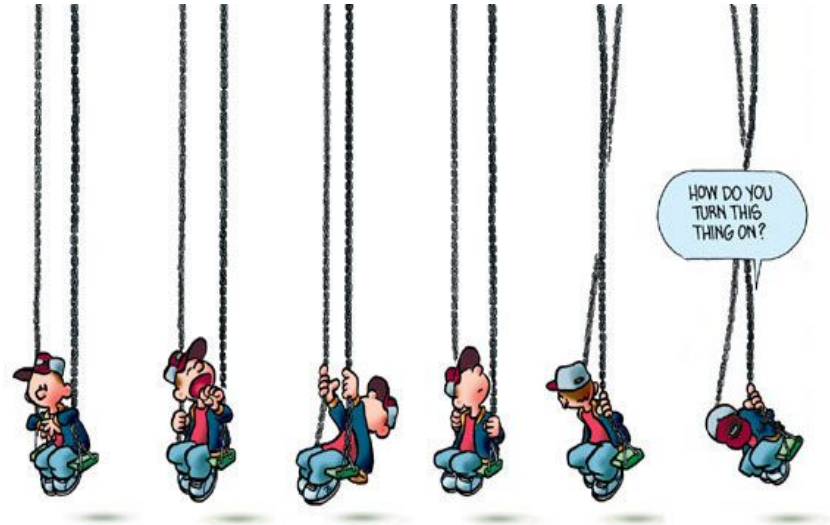
1. Explain Newtons First Law of Motion in your own words.





# PHun Pendulums!

A pendulum consists of a mass  $m$  and a massless stick of length  $l$ . The pendulum support oscillates horizontally with a position given by  $x(t) = A\cos(\omega t)$ . What is the general solution for the angle of the pendulum as a function of time?



# PHYSICS



*Physics*