JupyterLab Intro

PH 211 Lab

January 10, 2020

Then I can write stuff like I usually do. If I just start a new line in the markdown text (look at what I did) the processor doesn't produce a new line when it runs the cell. To get a new line I have to be sure to leave two (2) spaces at the end of the previous line.
Like this..

This is what it looks like if I leave a blank line in the markdown text that I am typing.

I also have access to some quick ways to create **bold** type and *italic* type and ***both***. There are lots more possibilities that are in the markdown tutorial links you can access from the PH211 Software Resources (http://coccweb.cocc.edu/bemerson/PhysicsGlobal/Courses/PH211/PH211Learning/PH211Software/PH211Softpage.html) page (and now you know how to make a hot link).

Trigonometry stuff....

Basic Identity

Each of these equations renders the same ($ and \$$ around the text accesses LaTeX typesetting) except that the second one is displayed centered in the cell with using alightly larger fonts.

$1 = sin(\theta)^2 + cos(\theta)^2$

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Lots of useful tools hiding in this particular example...

$$\int \frac{-e^{-ikr}}{4\pi r} dr = \int i\sqrt{\frac{k}{32\pi r}} H^{(2)}_{1/2}(kr) dr$$

Yes, it's pretty ridiculous but it illustrates what is possible and the care that can be required to get it to look good....I'm trying to make sure you have the tools but you still have to work for it a little:)

On to some coding..

It always starts with 'Hello World' so lets get that out of the way...

```
In [7]: print("Hello World")
```

```
Hello World
```

...onwards.....

That's done so now I asked you to do some basic math stuff -- add, subtract, multiply, divide, square, and square root.

I am asking that you do each operation in a separate cell for starters and then combine them. See what happens if you leave out parentheses or insert extra spaces.

Ignore the `import numpy as np` statement. We will learn about that in the future but I wanted to do powers and roots a different way so that you will need to seek out a simpler solution for this lab.

In [14]:
```
import numpy as np
(np.power(16,2.7)*34.567/12.666)*np.sin(3.5)-2.33/4*(5.2+7)+np.sqrt(545933.2)
```

Out[14]:
```
256
```

Assigning variables

It is tremendously easy to get buried in numbers spewing out of your calculations and physics models. Learning to assign variable names that help your reader understand what you're doing is well worth the effort. We will speak more of this as we go deeper into the course.

In [11]:
```
what_a_mess = (np.power(16,2.7)*34.567/12.666)*np.sin(3.5)-2.33/4*(5.2+7)+np.sqrt
(545933.2)
print("This is the result of the giant mess: ", what_a_mess)
```

```
This is the result of the giant mess:  -975.0427897874935
```