Lenses Graphing Lab

Due Date: 12/5 at the beginning of class

Task: Use collected data to create a graph whose slope gives the focal length of a lens.

Equipment: Optical bench, Light source, Lens (given f = 10.0 cm or 20.0 cm), Screen

Hints: 1. Start with the equation $\frac{1}{f} = \frac{1}{u} + \frac{1}{v}$ and determine a relationship that can be written as $y = mx + b$ where *f* is the slope.

2. You can graph processed data.

Data collection: There will be two days in which to determine the procedure and collect all of the data.

Product: This is to be hand-written and turned in individually.

1. (2 pts) Derivation of the equation you chose to use as your basis for graphing.
2. (2 pts) Description of the data you collected.
3. (6 pts) Data table with all of your raw and processed data. (Properly labelled)
4. (4 pts) Hand-Drawn graph with points plotted and a best-fit line drawn.
5. (4 pts) Calculation of the focal length.
6. (2 pts) Calculation of the percent error in the value of the focal length.

Planning: