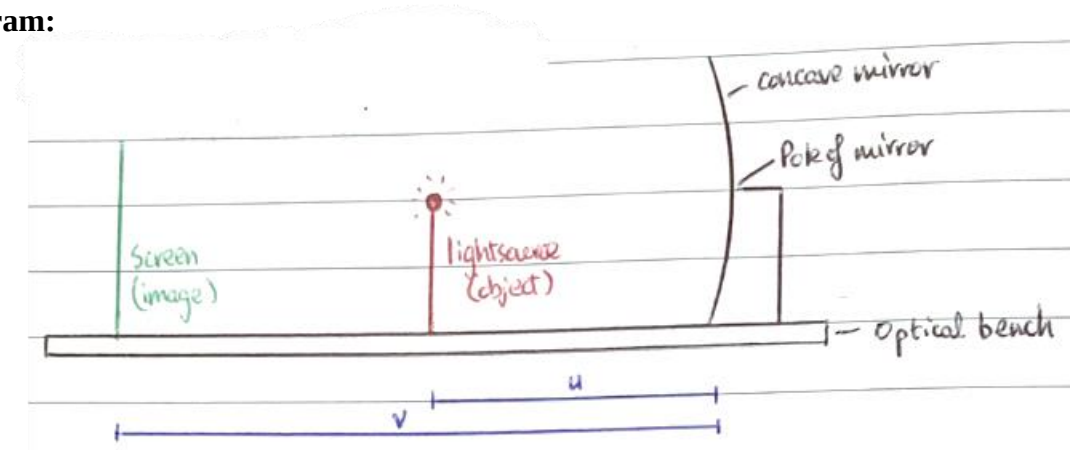
Light Experiment #1

Focal length of a concave mirror

Diagram:



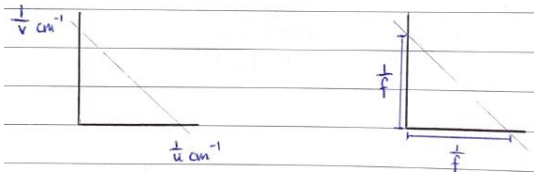
Method - Focus light from distant object onto paper

- appropriate 'f' value

- u > f

- Sharp image + measure “u” + “v”

Graph



$$\frac{x\ intercept\frac{1}{f}+y\ intercept\frac{1}{f}}{2} = aug.\frac{1}{f}intercept$$

Error + Precautions: - parallax

- sharpest focus

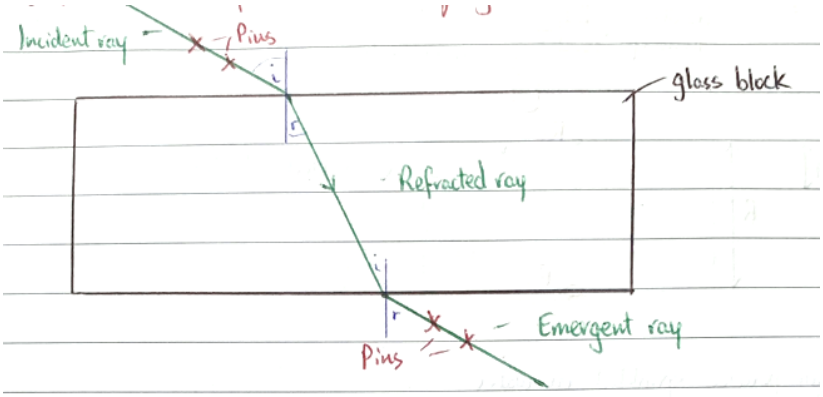
- u >f

- repeat

Light Experiment #2

Snell's Law + Refractive index of glass

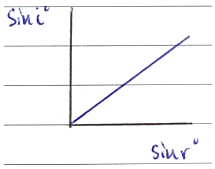
Diagram



Method:

- outline edges of block
- draw normal + lines at X° from normal
- pin + pin on far side looking through glass - appear in line
-draw lines + find r°

Graph



slope = $\frac{\sin(i)}{\sin(r)} = n = refractive\ index$

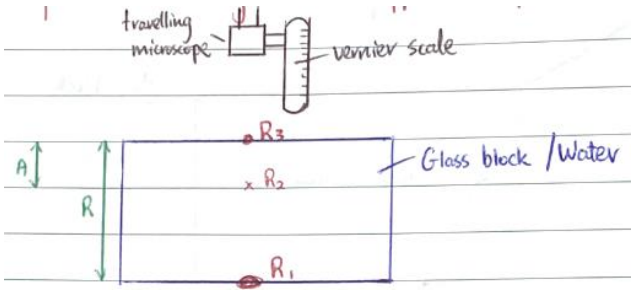
Errors + Precautions:

- accurate lines
- thick block - including displacement rays
- larger construction lines
- avoid small i°

Light Experiment #3

Measuring refractive index using real and apparent depth.

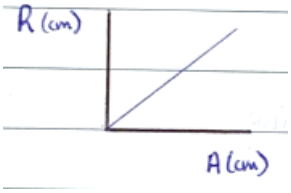
Diagram:



Method: - lycopodium powder sprinkled on water

- $n = \frac{R_3 - R_1}{R_3 - R_2} = \frac{R}{A}$

Graph:



Slope= $\frac{R}{A} = n = refractive\ index$

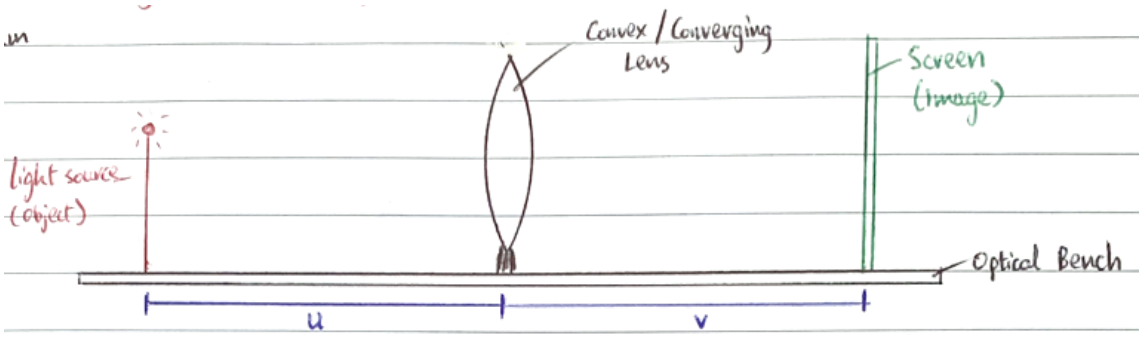
Errors + Precautious: - judging sharpest focus

- parallax - vernier scale

Light Experiment #4

Measuring the focal length of a convex lens

Diagram

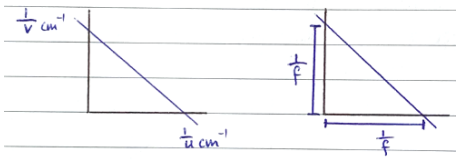


Method: - focus light of distant object onto sheet.

- find approximate value for "f"

- u >f

Graph:



$$\frac{x\ intercept\ \frac{1}{f} + y\ intercept\ \frac{1}{f}}{2} = aug.\ \frac{1}{f}\ intercept$$

Errors + Precautions: - u > f

- sharpest focus