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Physics 208-CC3

Lab 2 - Reflection, Refraction, Dispersion

Procedures

The lab was divided into two groups since it was lengthy and in order to complete it within the time frame this was needed. Light sources were adjusted to hit the medium and measure reflection, refraction, and dispersion. Every light that occurred was drawn on paper. This was needed to do further calculations.

Organized Data/Calculation:

- **Part I – Regular Reflection from Plane Mirror**
 - 1st angle $\theta_{i1} = 45^\circ$
 - 1st angle $\theta_{r1} = 45^\circ$
 - 2nd angle $\theta_{i2} = 15^\circ$
 - 2nd angle $\theta_{r2} = 15^\circ$
- **Part II and III – Reflection from Concave Mirror**
 - Graph
- **Part IV – Refraction through Parallel Surface**
 - Angle $\theta_i = 30^\circ$
 - Angle $\theta_r = 19^\circ$
 - **Snell's Law**
 - $N_2 = ((1 * \sin(30)) / (\sin 19)) = 1.53$

- **Part V – The Critical Angle (D) for Total Internal Reflection**

- Angle, $\theta_c = 40^\circ$

- **Snell's Law**

- $n_2 = \sin(90) / (\sin 40) = 1.55$

- **Part VI, VII – Refraction through a Double Convex Lens**

- and VIII: Spherical Aberration**

- Graph

- **Part IX: Totally Reflecting Prism**

- Angles are 90° and 180°

- Graph

Question:

- **Question 1-** Part IV - Organized Data/Calculation

- **Question 2-** Part V - Organized Data/Calculation

- **Question 3-** Part X- Not Done Yet in the Lab

Analysis/Discussion

Throughout the experiment principles such as reflection, refraction and dispersion using glass objects and a light generator. This was accomplished by analyzing how light went through different materials. Snell's law was used to calculate the angles of incidence reflection and dispersion. Many properties differed such as line of incidence, and angle of refraction depending on the material used as the medium. There were potential errors in this lab such as inability to calculate using the protractor of ruler or slight human errors using these tools.