Determination of the refractive index of glass using plane-parallel plates.

Purpose of work: To
learn how to determine the refractive index of glass using a prism and a laser.
Equipment: optical bench, plane-parallel plate.

Theoretical part:
Getting from one medium to another, the light beam is refracted.
The ratio of the sine of the angle of incidence α to the sine of the angle of refraction β is a constant value for two given media $\frac{Sin\ \alpha\ Sin}{\beta}$ = const and is called the relative refractive index n.
It is proposed to measure it in this laboratory work.

ON THE BOARD
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Workflow

1. Assemble the items on the optical bench in the following order: screen, turntable, laser. Place the prism on the turntable.

2. Start the simulation. The laser will turn on and the laser beam will be displayed.

3. Rotate the prism turntable an arbitrary number of degrees. Measure the angle of incidence (α). Measure the angle of refraction (b). Enter the data into the table.

4. Write a formula to calculate the refractive index of the prism.

$$n = \frac{Sin\ (\alpha)}{Sin(\beta)}$$

5. Repeat the experiment several times.

6. Table:

experiment number	***α***	***b***	**n**
1.			
2.			
3.			

7. Make a conclusion:
A. The relative refractive index is equal to 1,7,which means that the speed of light at the transition from air to glass is reduced to 1,7 times.
IN. The relative refractive index is 1.7, which means that the speed of light in the transition from air to glass increases 1.7 times.
FROM. The relative refractive index is 1.7, which means that the speed of light is always constant and does not depend on the medium of light propagation.