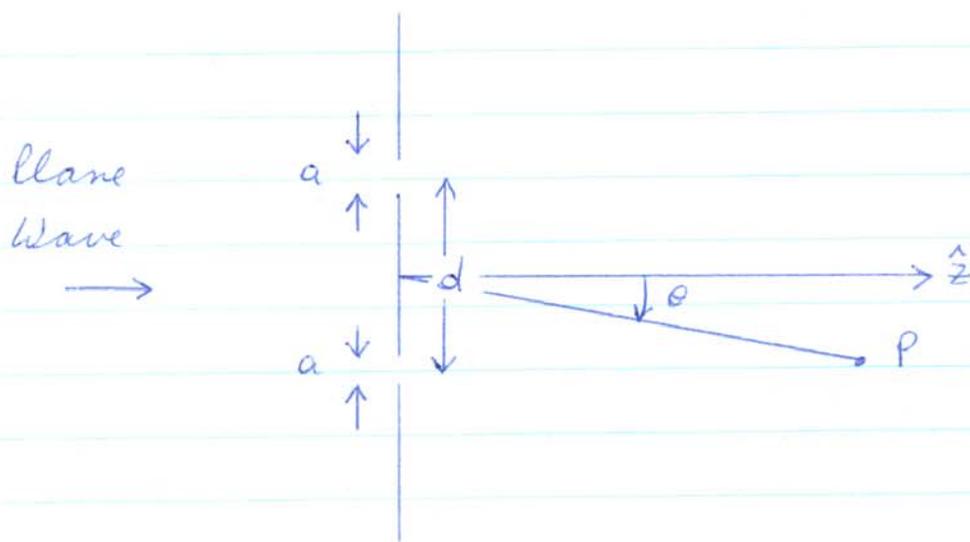


## Assignment 8

- 1) Verify that Babinet's Principle holds for the diffracting disk and for the aperture in an infinite plane.
- 2) Diffraction from a single slit of infinite length
  - a) Why is the central maximum twice as wide as the other maxima?
  - b) Evaluate the Fraunhofer limit for a 1 mm wide slit illuminated by a HeNe laser  $\lambda = 6328 \text{ \AA}$ .
  - c) A screen is located 4 m. from the slit described in b. What is the distance between the two minima next to the central maximum?
- 3) A plane wave is incident on a double slit.



Assuming Fraunhofer diffraction, find the intensity at  $P$  and plot it versus  $\theta$ . Discuss how  $d$  and  $a$  affect  $I(P)$ .