

Name _____ Instructor name _____

You must show and explain all work neat and organized to receive credit. Please show each step for calculations. YOU MUST TURN IN THIS SHEET to have your assignment graded.

1. (a) What is Young's interference? (b) How should the number of observable interference fringes change as the distance between the two slits increases? Assume that the slit width remains unchanged.

(c) How should the number of observable interference fringes change as the slit width decreases? Assume that the slit separation remains unchanged. (d) What is a missing fringe? (15 pts)

2. If the ratio $d/a = 7$, how many complete interference fringes within the central diffraction peak do you expect to observe? Please show detailed calculations. (5 pts)