1. Saleh and Teich Exercise 4.2-1, page 123. Do the comparison for points in the output plane that lie on the optic axis. (In other words, you can take $a = 0$ in the discussion on page 123.)

2. Suppose a laser produces a light beam 2 mm in diameter, with a wavelength of 633 nm. Estimate how large a spot would be produced if the laser were pointed at the moon, a distance of $376 \times 10^3$ km away. Neglect any effects of the earth’s atmosphere.

3. Calculate the Fraunhofer diffraction pattern produced by a set of three rectangular slits with dimensions as shown.

4. Calculate the Fraunhofer diffraction pattern produced when a rectangular slit of width $D_x$ and height $D_y$ is illuminated by a plane wave making a small angle $\theta$ with respect to the plane of the slit, as shown. Show that the pattern itself propagates at the same angle $\theta$. 
