波導光學 Homework#2

1. Consider a symmetric slab waveguide with n_1=1.516, n_s=n_0=1.0, and 2a=8μm, at a wavelength of 1.55μm, develop your own mode solver to answer the following questions.

(a) Develop your own mode solver using the finite difference scheme outlined in the lecture. Solve for the waveguide modes and their corresponding propagation constants using your mode solver. From the results, answer the following questions:
(b) How many TE modes does the waveguide support?
(c) Find the propagation constant β corresponding to each TE mode. Compare your results with those from homework #1.
(d) How does the step size in discretization affect the mode solver results?