波導光學 Homework#1

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, answer the following questions by solving the dispersion equations (1.14).
(a) How many TE modes does the waveguide support?
(b) Find the propagation constant β corresponding to each TE mode.
(c) What should "a" be for the waveguide to support only one propagating mode?