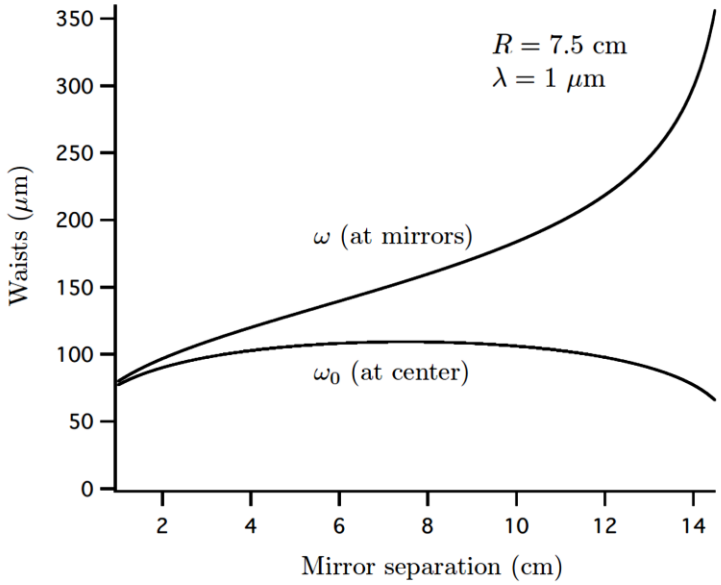
Homework #4 (Due date Nov. 2 before the problem solving session in the class)

1. Draw the curves similar to Fig. 2.4 for the range of 0<d<2R with the parameters that you are interested in e.g. R = 15 cm, λ = 0.37 um or R = 20 cm, λ = 0.78 um or R=10cm, =0.532 um.



2. (a) Find the stability condition in terms of d_3, d_1+2d_2, and R.

(b) Find the small waist within d_3 range and the large waist within d_1 in terms of g_1 (=1-(d_1+2d_2)/R), g_2 (=1-d_3/R) and R.

3. Find and draw the size and the Radius of curvature of the beam everywhere inside the cavities with R = 6 cm, d_3 = 7 cm, d_1+2d_2 = 18 cm, λ = 0.74 um. At the curved mirror, how much the radius of curvature is different from R?