

## HW4 Solution

6.20  $D_1 = 1, D_2 = 2$ , and the system matrix is  $A = \begin{pmatrix} 0.6 & -2.6 \\ 0.2 & 0.8 \end{pmatrix}$ .

6.22  $D_1 = -0.05, D_2 = 0$ , and the system matrix is  $A = \begin{pmatrix} 1 & 1/20 \\ 20/3 & 4/3 \end{pmatrix}$  or  $\begin{pmatrix} 1 & 1/20 \\ 2/3 & 31/30 \end{pmatrix}$ .

Incident angle is  $\alpha_i = -0.1$  rad.

6.28 (a) Spherical aberration. Because it's symmetrical and looks like a somewhat altered Airy pattern.

(b) Coma. Because the pattern is asymmetrical and looks like the Airy system were pulled off to the side.

(c) Astigmatism. Because it's asymmetrical along two axes.