Section 4.5

Dr. Bob

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1. Chromatic aberration is when light rays of different wavelengths focus at different points. This is due to the index of refraction to be different for different wavelengths. Chromatic aberration can be corrected by using an achromatic doublet. An achromatic consists of a diverging & converging pair of lenses designed so that light of all wavelengths will focus at the same point.

2. a) The lenses focal length is different for red light than it is for green light.

   b) The green light will have a shorter focal length than the red light.

3. Spherical aberration is due to the spherical shape of the lens. Parabolic lenses would not have this problem, but they are more difficult to make.