

53. From Eq. 35-10, if

$$f \propto \left(\frac{1}{r_1} - \frac{1}{r_2} \right)^{-1} = \frac{r_1 r_2}{r_2 - r_1}$$

is positive (that is, if $r_2 > r_1$), then the lens is converging. Otherwise it is diverging.

- (a) Converging, since $r_2 \rightarrow \infty$ and r_1 is finite (so $r_2 > r_1$).
- (b) Diverging, since $r_1 \rightarrow \infty$ and r_2 is finite (so $r_2 < r_1$).
- (c) Converging, since $r_2 > r_1$.
- (d) Diverging, since $r_2 < r_1$.