23.32. **Model:** Assume the biconcave lens is a thin lens.

Visualize: Please refer to Figure Ex23.32.

Solve: If the object is on the left, then the first surface has $R_1 = -40$ cm (concave toward the object) and the second surface has $R_2 = +40$ cm (convex toward the object). The index of refraction of glass is 1.50, so the lens-maker's equation is

$$\frac{1}{f} = (n-1)\left(\frac{1}{R_1} - \frac{1}{R_2}\right) = (1.50 - 1)\left(\frac{1}{-40 \text{ cm}} - \frac{1}{+40 \text{ cm}}\right) = (0.50)\left(-\frac{1}{20 \text{ cm}}\right) \Rightarrow f = -40 \text{ cm}$$