

**23** First note that  $\sec \theta = 2$  when  $\cos \theta = \frac{1}{2}$  and  $\sec \theta = -2$  when  $\cos \theta = -\frac{1}{2}$ .

(a) Start by solving  $\cos \theta_R = \frac{1}{2}$ :  $\theta_R = \cos^{-1} \frac{1}{2} = 60^\circ$ . The secant function is positive in quadrants I and IV.

Angles in these quadrants with a  $60^\circ$  reference angle are  $60^\circ$  and  $300^\circ$ .

(b) Start by solving  $\cos \theta_R = \frac{1}{2}$ :  $\theta_R = \cos^{-1} \frac{1}{2} = 60^\circ$ . The secant function is negative in quadrants II and III.

Angles in these quadrants with a  $60^\circ$  reference angle are  $120^\circ$  and  $240^\circ$ .