1. Al is flying a kite. When Al lets out 200 feet of string, the string makes a $40^\circ$ angle with the level ground. Then, when Al lets out 10 feet more of string, the kite rises vertically and the string makes a $42^\circ$ angle with the level ground. How many feet has the kite risen?

2. A wheel, of radius 5 ft and centered at the origin in the $xy$-plane, is rotating counterclockwise, driven via a belt by a drive wheel of radius 2 ft. The drive wheel is rotating at $\frac{1}{2}$ revolution/min.
   (a) What is the angular speed (in radian/min) of the wheel?
   (b) A point $P$ on the rim of the wheel is initially at the position shown, find the $x$- and $y$-coordinate of $P$ after 2 minutes.