Please **show your work** for full credit.

1. Al is flying a kite. When Al lets out 200 feet of string, the string makes a 40°
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° 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.