

The Balloon Shadow Problem

A balloon is released from ground level at night near a 10 m tall lamp post. A few moments later the balloon is 6 m above the ground and rising vertically at 1 m/s, while the balloon's horizontal distance to the lamp post is 5 m and the wind is increasing that distance by $1/2$ m/s. How fast is the balloon's shadow moving along the ground at that same instant?