

## Related Rates

### Demonstration Activity

- 1) Open the Related Rates IV Demonstration located at <http://demonstrations.wolfram.com/PersonWalkingAwayFromSpotlight/>
- 2) First get familiar with the various options. Adjust the slider for distance. You can click on the box with a plus sign and press play to animate the demonstration.
- 3) What happens to the height of the shadow as the person walks closer to the wall?
- 4) Assume the spotlight is 12 m from the wall. The person walks at a rate of 1.6 m/s. The person is 2 m tall. Find the rate of change of the shadow when the person is 2 m from the wall. Solve using Calculus, then verify your answer with the demonstration. Show all work.
- 5) Repeat the above problem if the person is 8 m from the wall.
- 6) Does the shadow decrease faster as the person gets closer to the wall or is farther away from the wall? Explain why?