Author 1 _____

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Group Work 14

1. (Taken from §3.9, Example 2)) A 10 ft ladder rest against a vertical wall. If the bottom of the ladder slides away from the wall at a rate of 1.5 ft/s, how fast is the top of the ladder sliding down the wall when the bottom of the ladder is 6 ft from the wall?

(a) Picture

(b) Known & Unknown Rates

- Rates you know:
- Rates you want:

(c) Relating equation for the quantities

(d) Relating equation for the rates

(e) Solution

2. A snowball is melting at a rate of 2.5 cm^3/min. Find the rate at which the diameter is decreasing when the diameter is 10 cm.

(a) Picture

(b) Known & Unknown Rates

- Rates you know:
- Rates you want:

(c) Relating equation for the quantities

(d) Relating equation for the rates

(e) Solution

3. (Taken from §3.9, #16)) A spotlight located on the ground shines on a wall 12 m away. If a man 2 m tall walks from the spotlight toward the building a speed of 1.6 m/s, how fast is the length of his shadow on the building decreasing when he is 4 m from the building?

4. (Taken from §3.9, Example 5) A woman walks along a straight path at a speed of 4 ft/s. A searchlight is located on the ground 20 ft from the path and is kept focused on the woman. At what rate is the searchlight rotating when the woman is 15 ft from the point on the path closest to the searchlight?