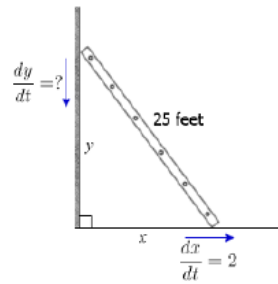


Related Rates



Steps to solve:

1. Identify the known variables and rates of change.

$$x = 15 \text{ m}; y = 20 \text{ m}; x' = 2 \frac{\text{m}}{\text{s}}; y' = ?$$

2. Construct an equation relating these quantities.

$$x^2 + y^2 = r^2$$

3. Differentiate both sides of the equation.

$$2xx' + 2yy' = 0$$

4. Solve for the desired rate of change.

$$y' = -\frac{x}{y} x'$$

5. Substitute the known rates of change and quantities into the equation.

$$y' = -\frac{15}{20} \cdot 2 = \frac{3}{2} \frac{\text{m}}{\text{s}}$$