

Steps to a Related Rate Problem

1. Draw and label a figure.
 2. Identify the rates of change that are known and the rate of change that is to be found.
 3. Find an equation that relates the quantity whose rate of change is to be found to the quantities whose rates of change are known.
 4. Differentiate this equation with respect to time.
 5. Fill in all known quantities and rates, and solve for the unknown rate of change.
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1. Oil spills from a ruptured tanker and spreads in a circular pattern whose radius increases at a constant rate of 2 ft/sec. How fast is the area of the spill increasing when the radius of the spill is 60 feet?

2. A 5-foot ladder leaning against a wall slips in such a way that its base is moving away from the wall at a rate of 2 ft/sec at the instant when the base is 4 feet from the wall. How fast is the top of the ladder moving down the wall at that instant?

