

The information below is adapted from *How to Ace Calculus: The Streetwise Guide*.¹

General strategy:

- (a) Read the problem.
- (b) Draw a diagram, *valid at every possible time*.
- (c) Find the general equation.
- (d) Find the particular information corresponding to the particular time that you are interested in. Write it down in a box labeled “Particular Info.” Also in this box, put down the quantity you are after (the derivative of one of the variables at this time), followed by a question mark.
- (e) Differentiate the general equation implicitly with respect to time. The resulting equation will contain at least two derivatives.
- (f) Plug the particular information into the resulting equation. This step must come *after* Step (e)!
- (g) Write down your answer in a complete sentence.

Common types of related-rates problems include Pythagorean Theorem (like Examples 2 and 4 in Stewart’s textbook), wine barrel (like Examples 1 and 3), and similar triangles. Another type is the trig-function problem like in Example 5.

¹Colin Adams, Joel Hass, and Abigail Thompson, W. H. Freeman and Co., New York, 1998