Solving Related Rates Problems

1. List all of the given information
2. Write an equation to solve for the unknown rate
3. Find any unknown variables
4. Take the derivative of both sides of the equation
   1. Ex. becomes
5. Substitute any variables/rates into the equation from the given information
6. Solve the equation and use correct units

Ex. 1: The radius of a sphere is increasing at a rate of 3 feet per minute. At what rate is the volume of the sphere changing when the radius of the sphere is 2 feet?

1. , ,
2. N/A
3. ft/min

Ex. 2: The side y is decreasing at a rate of 3 feet per second. At what rate is the side x changing when side y is 6 feet and hypotanuse z is 10 feet?

1. , , ,

4. ft/sec