Example: A tank initially contains 120 L of pure water. A mixture containing a concentration of $\gamma$ g/L of salt enters the tank at a rate of 2 L/min, and the well-mixed solution leaves the tank at the same rate. Find an expression in terms of $\gamma$ for the amount of salt in the tank at any time $t$. Also find the limiting amount of salt in the tank as $t \to \infty$. 
Example: Newton’s Law of Cooling states that the temperature of an object changes at a rate proportional to the difference between its temperature and that of its surroundings. Suppose that a cup of coffee has a temperature of 200°F when freshly poured, and 1 min later has cooled to 190°F in a room at 70°F. Determine when the coffee reaches a temperature of 150°F.
Example: A ball with mass 0.2 kg is dropped from a great height. Assume that the force due to air resistance (drag force) has a magnitude proportional to the velocity (e.g. $\gamma v$) with drag coefficient $\gamma = 0.1$ directed opposite to the velocity. Find an expression for the velocity at any time $t$. What is the limiting (terminal velocity) of the ball?