Week 79 (3/15/04)

Propelling a car

For some odd reason, you decide to throw baseballs at a car of mass M, which is free to move frictionlessly on the ground. You throw the balls at the back of the car at speed u, and at a mass rate of σ kg/s (assume the rate is continuous, for simplicity). If the car starts at rest, find its speed and position as a function of time, assuming that the back window is open, so that the balls collect inside the car.