Falling Balloon with and without Air Drag

equation of motion:
$$ma = mg - c_1 rv - c_2 r^2 v^2$$

$c_1 = 3.1e\text{-}4 (kg/m)/sec$ $r = 0.35m$ $y_0 = 3m$

$c_2 = 0.85 kg/m^3$ $m = 0.034kg$ $v_0 = 0m/sec$