

Math 2243 Quiz 3 Feb 10, 2013

Name _____ ID _____ Session _____

A ball of mass m is shot upwards, starting from the ground, with an initial velocity of v_0 (m/s). Assume that v_0 is a slow speed so that air resistance is (linearly) proportional to velocity with proportionality constant k .

1

Using the above, derive or write down the formula for $v(t)$, the velocity of the ball with respect to time, in terms of k , m , gravitational constant g and v_0 .

2

Express the time of the ball needed to attain the maximum height, in terms of k , m , gravitational constant g and v_0 .