

Name-code: \_\_\_\_\_

10. A planet of mass  $m$  is orbiting a star of mass  $M$ . The planet experiences a small drag force  $\vec{F} = -\alpha\vec{v}$  due to motion through the star's dense atmosphere. Assuming an essentially circular orbit with radius  $r = r_0$  at  $t = 0$ , calculate the time dependence of the radius.