

Economics 511 Problem Set 21  
Linear First-Order Differential Equations

D. Primont

March 23, 2009

1. Exercise 1, page 869. See textbook
2. Exercise 7, page 869. See textbook
3. Exercise 4, page 875. Since the initial penalty is 10 grade points,  $m(0) = 10$ . Thereafter,

$$\dot{m} = t, \quad \text{or} \quad \frac{dm}{dt} = t.$$

Integrating,

$$m(t) = \frac{t^2}{2} + C.$$

Since

$$m(0) = 10 = C,$$

we get

$$m(t) = \frac{t^2}{2} + 10.$$

4. Exercise 7, page 877. See textbook