

## Math 256 Problem Set I

Due January 12

6<sup>th</sup> edition page 23 # 2c,4c,6c,13,16,18

= 5<sup>th</sup> edition page 22 # 2,4,6,9,12,14

= 4<sup>th</sup> edition page 20 # 2,4,6,9,12,14

= 3<sup>rd</sup> edition page 17 # 2,4,6,7,10,12

6<sup>th</sup> edition page 54 # 6,15,19,28

= 5<sup>th</sup> edition page 49 # 5,13,14,23

= 4<sup>th</sup> edition page 51 # 5,12,13,21

= 3<sup>rd</sup> edition page 58 # 9 (replace  $\frac{1}{2}$ -life by 5568),10,12,21

### Old Exam Problem

The velocity of a rocket obeys the differential equation

$$m(t)\frac{dv}{dt} + kv = -m(t)g + s\beta$$

where  $m(t) = m_0 - \beta t$ . At time zero  $v = 0$ . Find  $v(t)$  for  $0 \leq t < m_0/\beta$ .