Department of Mathematics and Statistics
University of Calgary

AMAT 311 L01
Fall 2006

Quiz 3a
Monday, October 23, 16:00-16:50.
Time: 30 min.

Calculators are not allowed

Name:.....

I agree that this paper may be placed at the front of the classroom for pick-up

Signature:.....

Problem. The rate of decay of a radioactive substance is proportional to the amount of substance present

$$\frac{dQ}{dt} = -kQ. \tag{1}$$

a/ [3 marks] Find the general solution of equation 1.

b/ [3 marks] Define the notion of the half-life of the substance and relate it to the constant k in equation 1.

c/ [6 marks] Half-life of C^{14} is 5570 years. Establish the age of an organic archeological find if the amount of C^{14} present in it is $\frac{1}{4}$ of the amount present in living organisms.