1. The US Unemployment Rate was 5.0% in January 2008 and 7.7% in January 2009.¹

   (a) Find a linear function which fits these data using the number of years since January 2008, \( t \), as the independent variable and the unemployment rate, \( U \), as the dependent variable.

   (b) Find a reasonable applied domain for the model you found in (a).

   (c) Use this model to predict the unemployment rate in January 2010.

   **NOTE:** The actual unemployment rate was 9.7%.

2. The height of a frog off the ground, \( h \) (in feet) \( t \) seconds after it jumps in the air is given by

   \[
   h(t) = -16t^2 + 32t, \quad 0 \leq t \leq 2.
   \]

   Find and interpret the average rate of change of \( h \) over the interval \([1, 2]\).

¹Source: http://www.bls.gov/cps/