

Home work 5: Due Thurs. March. 3, 2016 Math 2335 Spring 2016

Name: _____

(1) A body is found at noon, and the coroner's assistant determines the core body temperature to be 94.2°F . At 2pm, the coroner finally arrives and determines the core temperature of the body to be 84.6°F .

(a) Use a linear interpolation to approximate the temperature of the body at 1pm. (Hint: Take time $t = 0$ at noon.)

(b) Use the line found in part (a) to approximate the time of death. Assume the deceased's body temperature was normal (98.6°F) at the time of death.

(c) The coroner notices that the assistant took a temperature reading at 1pm and recorded the true body temperature at that time to be 88.9°F . Use the data at noon, 1pm, and 2pm to find a quadratic interpolation approximating the body temperature.

(d) What is the estimated time of death obtained using the quadratic polynomial?