Independent Mathematical Contractors
Any College
1 Your Street
City, State 00000

Dear IMC,

Over the past several years, we have discovered several bodies in our county. A key ingredient to the coroner's report on these deaths is the time of death. I have always used a rule I learned in a Thai graduate school to help determine the time of death. I am hoping that you all can help me to determine the validity of this rule.

Coroners estimate the time of death from body temperature using the simple rule of thumb. From a living temperature of 98.6° F, a body cools about 2°F during the first hour after death and about 1 °F for each additional hour. The temperature is measured using a small probe inserted into the liver which, being large and vascular holds body heat the longest.

I have always been uncomfortable with rules of thumb so I am concerned with applying this rule when my good name is on the line. If you assume an ambient temperature of 68° F + .1D, where D is the day of the month you were born in,   is there a range of times over which this rule of thumb is accurate? To reach your conclusion, I suggest that you to do the following:

1. Find a piecewise linear function that models the rule of thumb.
2. Graph the function.
3. Solve an equation to determine when the rule is no longer valid and verify that time using your graph.

I appreciate your prompt attention to this matter, and look forward to your technical memo. To assure your success in this endeavor, a scientific consultant (your instructor) will be available to answer any questions that you might have in the course of your investigations.

Warmest Regards,
Dr. Prodin Ma Stiffs