

**Problem Set 6      Calc 2      Due 11/22/2004**

Each problem is worth 5 points. For full credit provide complete justification for your answers.

1. A detective finds a murder victim at 9am, at which time the body's temperature is measured to be  $90.3^\circ$ . One hour later, the body's temperature is measured to be  $89.0^\circ$ . The temperature in the room has been maintained at a constant  $68.0^\circ$ .<sup>1</sup>

- a) Write a differential equation for the body's temperature after  $t$  hours have passed.
- b) Find a general solution to your differential equation.
- c) Find a particular solution to your differential equation satisfying the conditions given.

2. Do problem #20 from §11.5.

3. Do problem #22 from §11.5.

4. Do problem #18 from §11.6.

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<sup>1</sup>This problem shamelessly stolen from Hughes-Hallet 1<sup>st</sup>, p. 511.

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