

Problem Set 4**Calculus 1****Due 11/3/03**

Each problem is worth 5 points. For full credit indicate clearly how you reached your answer.

1. Tests have shown that caffeine's effect on the body peaks about 37.5 minutes after ingestion, and a can of Mountain Dew has 52.8 mg of caffeine. Find a curve of the form $f(t) = ate^{-bt}$ which peaks at (37.5, 52.8).

2. Suppose you're picking a seat in a movie theater with a 25' high screen whose bottom is 10' above the horizontal floor, and that (in your seated position) your eye is 4' above the floor. If you want to make your viewing angle (the angle made between the top of the screen, your eye, and the bottom of the screen) as large as possible, how far from the screen should you sit?

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