

You are encouraged to work in groups of two to four on this assignment and make a single group submission. Each problem is worth 5 points. For full credit indicate clearly how you reached your answer. All work must be legible and submitted on clean paper without ragged edges.

1. Do question #32 in §9.3.
2. Suppose that you want the cup of coffee in problem 1 to cool off more quickly so that you can drink it. One natural possibility is to stir the coffee. This effectively increases the value of the constant of proportionality in Newton's Law of Cooling – we'll suppose for the sake of this problem that it doubles that constant. Use Euler's method (with a step size of  $\Delta t = 0.5$  minutes) to determine whether it's better to stir the coffee for two minutes, then let it stand for two minutes; or to let it stand for two minutes, then stir for two minutes.
3. Do question #1 from the Applied Project: How Fast Does a Tank Drain? on p. 609.
4. Do question #3 from the Applied Project: How Fast Does a Tank Drain? on p. 609.