MATH 6 – RECITATION WORKSHEET 5
2 MARCH 2012

Today we'll see another application of differential equations, Newton's law of heating and cooling.

1. Newton's law of heating and cooling says that the rate of change in the temperature of an object is proportional to difference between the temperature of the object and the ambient temperature. Let the ambient temperature be T_0. Write a differential equation to model this situation.

2. Solve the differential equation you wrote in problem 1.

3. Suppose you have a pie that just came out of a 375°F oven (so the pie is 350°) and the room is 75°F. After 15 minutes, the pie is 275°. How long will it take for the pie to be 100° and cool enough to eat? (You may leave your answer in terms of ln and powers of e.)