

## Paper Homework 5

On October 3, at 10 am, you are walking past the Setauket Mill Pond and you notice that there is some algae on the surface of the pond. Being a curious and science-y sort of person, you decide to measure what percentage of the surface of the pond is covered with algae. You measure it very carefully and find that 2% of the surface is covered. Now, because you are so science-y, you decide to come back on October 8, at 10 am, and measure the algae on the surface of the pond again. This time, you find that 4% of the surface of the pond is covered with algae. You know enough about Biology to suspect that the growth of the algae is exponential, not linear. But, of course, you could be wrong!

1) Write a function,  $A(t)$ , that represents the amount of algae covering the pond at time  $t$ , where  $t$  is measured in days after October 3 (at 10 am) if the growth is exponential. Write a second function,  $L(t)$ , that represents the amount of algae covering the pond at time  $t$ , where  $t$  is measured in days after October 3 (at 10 am) if the growth is linear.

2) What percentage of the surface of the pond will be covered with algae on October 31, at 10 am, if the growth of the algae is (a) exponential; and (b) linear?