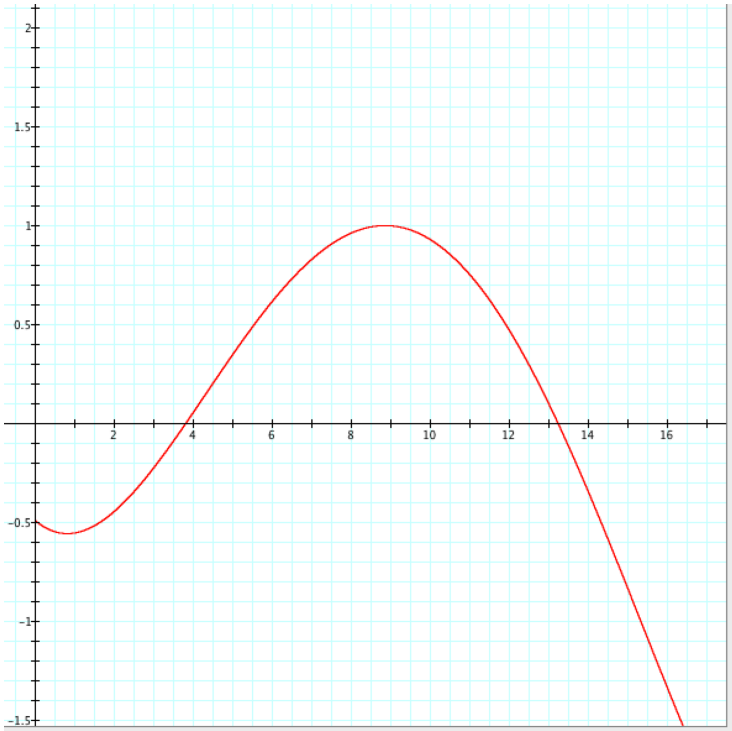
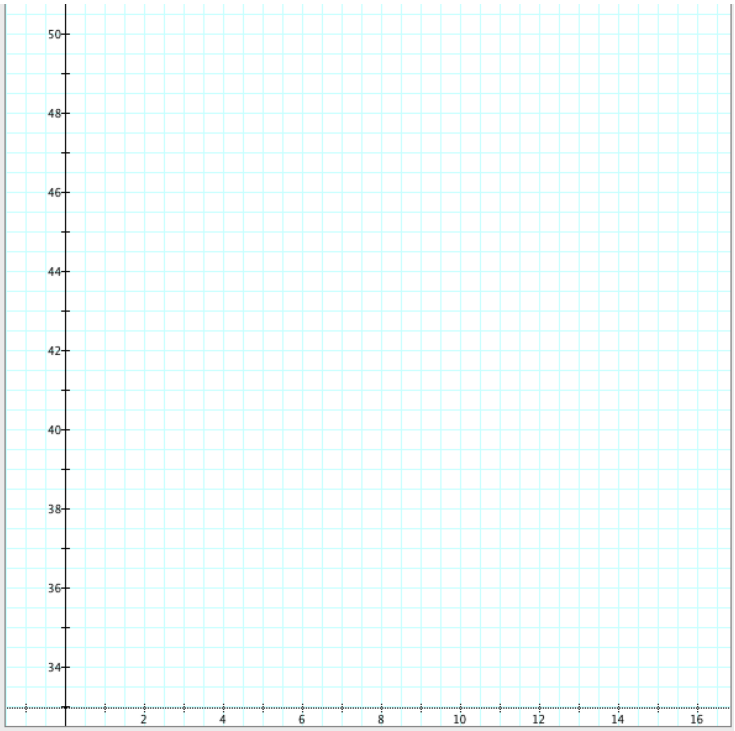
MAT 270 Quiz Accumulation & Integral Name_____

A malfunctioning fridge has a rate of change of temperature function r_T in degrees F/min for the 15 minute period shown. The temperature in the fridge is 40 degrees F at 3 p.m. ($x = 0$ minutes).





1) Describe generally how the temperature changes from 3 p.m. to 3:15 p.m. (x : 0→15)

2) Estimate the first time after 3 p.m. when the temperature returns to 40 degrees F. _____

3) Approximately when in these 15 minutes is the temperature the lowest? _____ ...the highest? _____

4) Write a definition of a function A_T that gives the exact accumulation of changes in temperature in the fridge at any time x minutes after 3 pm:

5) Write a definition of the function T, the exact temperature in the fridge x minutes after 3 pm:

6) Using r_T, sketch the function T on the axes above at right.

7) Express the temperature in the fridge at 3:10 p.m. in two ways: using function notation, and using an integral.

8) Express the *change* in temperature from 3:01 to 3:05 pm in two different ways, as in #7.

9) Express the largest increase in temperature during this 15 minutes, in two different ways as in #7.

Keep this side up until given notice to turn over and begin