

Challenge Problem for September 23, 2011

1. Show that  $T_{2n} = \frac{T_n + M_n}{2}$ . That is by averaging the trapezoid and midpoint methods you get exactly the same thing as if you did the trapezoid method with twice as many intervals.

Hint: Remember the number of intervals in  $T_n$ ,  $M_n$  and  $T_{2n}$  are different hence  $\Delta x$  is different.