Use Maple to answer the following questions. **Please turn in a print out of your Maple work —
including the requested graphs.**

Due: Monday, September 27th

$$I = \int_{-\pi}^{\pi} e^{\sin(x)} \, dx \qquad \text{and} \qquad f(x) = e^{\sin(x)}$$

Warning: Remember that in Maple "e^x" is "exp(x)" and "π" is "Pi" (captial P lowercase i).

1. Plot $f(x)$ where $-\pi \leq x \leq \pi$.

2. Use Maple's "int" and "evalf" commands to find the exact value of I and a decimal approximation.

3. Make Maple output plots illustrating the following approximations of I:

   (a) M_{10}

   (b) T_{10}

   (c) S_4 **Warning:** In Maple, "partition=10" corresponds to our text's "S_{20}".

4. Make Maple output the corresponding summations for problem #3's approximations.

5. Using the error bound in section 6.2 (page 387, Theorem 3), find n such that $|I - R_n| \leq 0.01$.

6. Using the n you found in the last part, compute R_n and verify that $|I - R_n| \leq 0.01$.

7. Using the error bound given in section 6.2 (page 387, Theorem 3), find n so that $|I - T_n| \leq 0.01$.

8. Using the n you found in the last part, compute T_n and verify that $|I - T_n| \leq 0.01$.

9. Using the error bound given in the interlude (page 405, Theorem 4), find N so that $|I - S_N| \leq 0.01$.

10. Using the N you found in the last part, compute S_N and verify that $|I - S_N| \leq 0.01$.
    [Again, be careful! Maple will want its "partition" parameter set to $N/2$ not N.]