Numerical Analysis - Homework 15

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Homework Problems

Try to write your own numerical integration code before you look at mine. Remember that on the final exam I will not be posting code.

- Use your numerical integration code to do problems 2 and 3 in chapter 5.1. Hopefully your code is written so that you can just change the function and the limits of integration.
- Then do problems 8 and 9 where you will derive and then write/use code for the Midpoint Rule.

You can check your results against using a "True Value" given by scipys numerical integrator. The code to generate the true value is given below:

```
# Define a, b, and f
a = 0
b = 1
def f(x):
    return np.exp(-x**2)

# Compare your results with a "true value"
import scipy.integrate as intg
true_val, error = intg.quad(f,a,b)
```

You should attempt all these problems before class, but we will work on them in class with our groups. NOTE: problem 10 would be a good above and beyond exploration.