Math 16B: Short Calculus II
Spring 2017, Section 1
Homework Sheet 7
Due: Wednesday, June 7, 2017

Submit your solutions to the following problems in lecture on the due date above. Present your work in a clean and organized fashion, either on a printed copy of this document (preferred) or a separate sheet of paper. As stated in the syllabus, late submissions will **not** be accepted.

1. Suppose you have a 6-sided die with side labels 1, 2, 2, 4, 4, and 5. Consider the (discrete) random variable x that counts the number of even values that occur when rolling it twice.

   (a) Identify all possible outcomes in the sample space, and find the probability of each.

   (b) Find the expected value (i.e. mean), variance, and standard deviation of x.

2. Let x be a continuous random variable with probability density function

$$f(x) = k\sin(x)$$

   for $0 \leq x \leq \pi$.

   (a) Find a value of k so that f is a probability density function.

   (b) Find the expected value (i.e. mean), median, variance, and standard deviation of f.