



# Homework 5

# Problem 1

- Create a set of random numbers ( $x$ ) uniformly distributed between 1 and 7. The expected value (mean) of this data set will be 4.
- What is the expected value of  $\sqrt{x}$ ?
- What is the expected value of  $x^2$ ?
- What is the expected value of  $1/x$ ?
- Draw histograms for these last 3 distributions.

## Problem 2

- Repeat problem 2 for a set of normally distributed numbers with a mean of 4 and standard deviation of 1.

# Problem 3

- What are the odds of throwing a 7 with two dice? Calculate this using Monte Carlo methods.

## Problem 4

- If I'm playing blackjack with a fresh deck and my hand totals 15, what is the probability that I will bust if I draw one card and the dealer is showing a face card?