

ECE 341 - Homework #4

Binomial and Uniform Distributions.

Binomial Distribution

Assume you toss a coin with a probability of a heads being 0.6

$$X(z) = \left(\frac{0.4z+0.6}{z} \right)$$

- 1) Determine the probability of tossing 6 heads in 8 tosses

- 2) Determine the probability distribution when tossing this same coin 8 times

NOAA has been keeping track of world weather for the past 142 years. 19 of last 20 years have been in the 20 hottest years on record.

- 3a) What is the probability of any given year being one of the 20 hottest on record (i.e. what is p?)
- 3b) What is the probability of 19 of the last 20 years being the hottest on record?

Uniform Distribution

Assume a fair six-sided die:

$$Y(z) = \left(\frac{1}{6} \right) \left(\frac{z^5+z^4+z^3+z^2+z+1}{z^6} \right)$$

- 4) Assume you roll 8 dice (8d6 or a level-8 fireball). Determine the
 - pdf
 - mean, and
 - standard deviation

- 5) Assume you roll 15 dice (15d6 or a level-15 fireball). Determine the
 - pdf
 - mean, and
 - standard deviation