

Homework 1b: Due 5/29/14

1. You roll two dice. Let X denote the sum of the dice. Compute the probability mass function $f(x)$ and plot a probability histogram.
2. Let μ and σ^2 denote the mean and variance of a random variable X . Determine $E[(X - \mu)/\sigma]$ and $E[((X - \mu)/\sigma)^2]$.
3. A hat is filled with 6 chips. Three are blue, two are red, and one is yellow. Determine the random variable X such that $X(\text{blue}) = 0$, $X(\text{red}) = 1$, and $X(\text{yellow}) = 2$. Assume each chip is equally likely to be drawn. Compute the mean, variance, and standard deviation of this probability distribution.

4. In a recent poll 65% of Americans disapprove of how their government works. Suppose this is true in general about all Americans and let X be the number of people who disapprove in a random sample of size 15. How is X distributed? Find $P(X \geq 10)$, $P(X \leq 10)$ and $P(X = 10)$. Find the mean, variance and standard deviation of X .