PSYC 5090: Topics in Mathematical Psychology

Tarleton State University | Homework 2

Consider a sequence of $N = 20$ trials with only two possible outcomes (success, failure).

1. If the probability of success on any one trial is $w = 0.35$, compute the probability of having 13 successes.
2. If the probability of success on any one trial is $w = 0.75$, compute the probability of having 10 successes.
3. Plot the probability distribution for $w = 0.35$.
4. Plot the probability distribution for $w = 0.75$.
5. How do these distributions differ?
6. Suppose we observe $x = 12$ successes. Plot the likelihood function for w, the probability of success on any one trial. Given these data, what is the most likely value for the parameter w?
7. Suppose we observe $x = 3$ successes. Plot the likelihood function for w. Given these data, what is the most likely value for w?