The Geometric Setting

1. Each observation falls into one of just two categories, which for convenience we call “success” or “failure”
2. **You keep trying until get a success**
3. The observations are all independent.
4. The probability of success, call it *p*, is the same for each observation.

Examples:

* \_\_\_\_\_\_\_\_\_ wants a date for prom. He estimates the probability that a girl will say “yes” to be \_\_\_\_\_\_%.
  + What is the probability that he will have to ask 6 girls to get his first “yes”?
  + What is the probability that he will ask no more than 4 girls to get his first “yes”?
  + What is the probability that he will have to ask more than 5 girls before he gets a date?
  + How many girls should John expect to ask before he gets a date? What is the standard deviation of the # of girls he has to ask to get a date? Interpret your answers in context.

Mean and Standard Deviation of Geometric Distribution:



* \_\_\_\_\_\_\_\_\_ wants a date for prom. He estimates the probability that a girl will say “yes” to be \_\_\_\_\_\_%. He decides to ask 10 girls.
  + What is the probability that 6 girls will say yes?
  + What is the probability that he will ask no more than 4 girls say yes?
  + What is the probability that more than 5 girls say yes?
  + Find John’s expected number of yes’s? What is the standard deviation of the # of yes’s? Interpret your answers in context.