Quiz 19

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This quiz does not count towards your grade. It exists to simply gauge your understanding. Treat this as though it were a portion of your midterm or final exam. In this quiz, we will walk through identifying distributions.

1 Identifying Distributions

For each of the following questions, identify the distribution and specify the parameters. For example, the number of heads in n coin flips is $X \sim Bin(n, \frac{1}{2})$.

1. Whether or not you roll a number greater than 4 (given a normal 6-sided die).

2. The number of times you roll a number greater than 4 in n flips.

3. The number of times 3 rolls roll exactly {3, 4, 5}, in n flips.

4. The number of times you expect to roll, until you achieve a number greater than 4.

5. The average amount of ice cream eaten in the summer - in pounds - given the average for June is 1, July is 2, and August is 3.

   More rigorously: Distribution of A, given $A = X + Y + Z$, and $X \sim Poiss(1), Y \sim Poiss(2), Z \sim Poiss(3)$.

6. The number of times 3 rolls in sequence are all numbers greater than 3, in n flips.

7. $min(G_1, G_2, ...G_n)$ where G_1 through G_n are all geometric distributions with parameters p_1 to p_n.

8. Taking $X \sim Bin(n, p)$ and defining a new random variable Y, such that $E[Y] = np$ and $\sigma^2 = np(1-p)$