Week 5 Wednesday

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Review

Make sure you know your neighbors' names. Then discuss:

Roughly 3% of Californians speak Chinese (including both Mandarin and Cantonese) at home. How might you go about computing the probability that, in a simple random sample of 1000 Californians, 20 or fewer people speak Chinese at home?

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(Come up with two strategies!)

Uniform and Exponential Distributions

Distributions Review

1. Which of the following might a manufacturer of a certain device model with an exponential random variable?

- (A) The number of faulty devices they produce in a day.
- (B) The amount of time that elapses between two faulty device productions.
- (C) The number of faulty devices out of a random sample of 100 devices they've produced.

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 (D) None of the above

2. Suppose that a manufacturer of a certain device finds that they make roughly 2 faulty devices per day. They've just made a faulty device. What is the probability that they produce another faulty device within the next 24 hours?

3. For Online Bookseller A, the amount of time that elapses between receiving a book order and putting the book order in the mail is roughly uniformly distributed between 6 and 30 hours. For a Online Bookseller B, the amount of time that elapses between receiving a book order and putting the book order in the mail is roughly normally distributed with mean 20 hours and standard deviation 4 hours. For which bookseller is it more likely that your order will take more than one day to ship?

- (A) A
- (B) B
- (C) Both have equal probability

4. Data from a 2022 Gallup poll suggests that roughly 20% of Generation Z Americans identify as LGBTQ. Would it be "unusual" to find 20 LGBTQ respondents in a simple random sample of 200 Generation Z Americans?

5. Suppose that a manufacturer of a certain device finds that they make roughly 2 faulty devices per day. What is the probability that they make no faulty devices today?