Week 2 Wednesday

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Make sure you know your neighbors' names, and then take 2 minutes to discuss:

The 1936 presidential election was between Democratic imcumbent FDR and the Republican nominee Landon. The Literary Digest polled about 10 million Americans and got responses from about 2.4 million. The magazine had surveyed its own readers, registered automobile owners, and registered telephone users. The poll showed that Landon would likely be the overwhelming winner and FDR would get only 43% of the votes.

Election result: FDR won with 62% of the vote.

The magazine was completely discredited because of the poll and was soon discontinued. What might have gone wrong?

Probability Basics

1. Suppose that 25% of people in a certain city have a dog and that 40% have a cat. Which of the following statements is the most accurate about the probability that someone from this city has either a dog or a cat?

- (A) The probability must be 65%.
- (B) The probability must be between 40% and 65%.
- (C) The probability must be between 25% and 65%.
- (D) None of the above.

2. Suppose that 25% of people in a certain city have a dog and that 40% have a cat. If having a dog and having a cat are independent, what is the probability that someone from this city has both a cat and a dog?

3. It costs \$1 to play a game where you roll two dice. If you roll two sixes, you win \$50. Otherwise, you're out the \$1 you had to pay to play. Consider the following two events:

- (I) You roll two sixes.
- (II) You roll two threes.

Which of the following is most accurate?

- (A) (I) is more likely than (II)
- (B) (II) is more likely than (I)
- (C) (I) and (II) are equally likely

4. There are 10 questions on a multiple-choice test, and each question has 4 options. You have not studied for the test at all, so you guess randomly on each problem.

What is the probability that you guess all of the answers correctly?

5. There are 10 questions on a multiple-choice test, and each question has 4 options. You have not studied for the test at all, so you guess randomly and independently on each problem.

What is the probability that you guess at least one answer correctly?

6. There are 10 questions on a multiple-choice test, and each question has 4 options. You have not studied for the test at all, so you guess randomly on each problem.

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What is the probability that the only answer you guess correctly is the very last one?