

1. Past records indicate that 8% of online retail orders are fraudulent. If twenty online retail orders are placed,
 - (a) what are the mean and standard deviation of the number of online retail orders that are fraudulent?
 - (b) what is the probability that none of the online retail orders are fraudulent?
 - (c) what is the probability that one online order is fraudulent?
 - (d) what is the probability that two or more online retail orders are fraudulent?
 - (e) What is the average number of online retail orders that are fraudulent?
 - (f) what is the standard deviation for the number of fraudulent online retail orders?

2. According to the Pew Research Center^{*}, 53% of U.S. adults owned a tablet computer as of February 8, 2021. Assuming that this percentage has not changed, what is the probability that when you survey six U.S. adults
 - (a) four will state that they own a tablet computer?
 - (b) all six will state they own a tablet computer?
 - (c) at least five will state that they own a tablet computer?

3. A survey conducted by Mashed[♦] determined that 30% of orders at McDonald's are wrong. Suppose you review twenty orders at McDonald's.
 - (a) On average, how many of these orders will be wrong?
 - (b) What is the standard deviation for the number of these order that are wrong?
 - (c) What is the probability that only one of these orders is wrong?
 - (d) What is the probability that at least one of these orders is wrong?

4. The industry standard for LED light bulb failure[▲] is 3%. Suppose you purchase ten LED light bulbs. What is the probability that
 - (a) none of the LED light bulbs are defective?
 - (b) one LED light bulb is defective?
 - (c) nine of the LED light bulbs are defective?
 - (d) On average, how many LED lightbulbs will be defective?
 - (e) What is the standard deviation for the number of defective LED light bulbs?

^{*} <https://www.pewresearch.org/internet/fact-sheet/mobile/>

[♦] <https://www.mashed.com/982504/mashed-exclusive-survey-reveals-the-fast-food-chain-with-the-most-wrong-orders/>

[▲] <https://www.reminetwork.com/articles/led-lamps/>