

Q1

The weights of bags of raisins are normally distributed with a mean of 175 grams and a standard deviation of 11 grams. Bags in the upper 4.5% are too heavy and must be repackaged. Also, bags in the lower 5% do not meet the minimum weight requirement and must be repackaged. What are the ranges of weights for raisin bags that need to be repackaged?

- Use Excel, and round your answers to the nearest integer.

Ans:

Repackaging has to be done if the weights are less than **1** grams and more than **2** grams.
Correct answers:

- **1** 157
- **2** 194

Q2

The top 5% of applicants on a test will receive a scholarship. If the test scores are normally distributed with a mean of 600 and a standard distribution of 85, how low can an applicant score to still qualify for a scholarship?

Use Excel, and round your answer to the nearest integer

Ans: 740

Q3

On average, 28 percent of 18 to 34 year olds check their social media profiles before getting out of bed in the morning. Suppose this percentage follows a normal distribution with a random variable X, which has a standard deviation of five percent. Find the probability that the percent of 18 to 34 year olds who check social media before getting out of bed in the morning is, at most, 32.

- Round your answer to four decimal places.

Ans: 0.7881

Q4

A worn, poorly set-up machine is observed to produce components whose length X follows a normal distribution with mean 14 centimeters and variance 9. Calculate the probability that a component is at least 12 centimeters long.