Equitable Equations: *The central limit theorem*

When using R, remember to include both code and output with your work.

Problem 1

At a local grocery, apples have mean weight .620 pounds with standard deviation .165 pounds. The distribution is approximately normal.

(a) What is the probability that a randomly-selected apple weighs more than .650 pounds?

(b) What is the probability that 10 randomly-selected apples weigh more than .650 pounds, on average?

(c) What is the probability that 50 randomly-selected apples weigh more than .650 pounds, on average?

(d) What is the probability that 500 randomly-selected apples weigh more than .650 pounds, on average?

Problem 2

Lengths of eruptions of the Old Faithful geyser are approximately normally distributed with mean 3.49 minutes and standard deviation 1.14 minutes.

(a) Which is more likely, a single eruption longer than 3.20 minutes or 20 eruptions with mean greater than 3.20 minutes? Compute both probabilities.

(b) Which is more likely, a single eruption longer than 3.60 minutes or 20 eruptions with mean greater than 3.60 minutes? Justify your answer without computing probabilities.