

Math 130: Introductory Statistics

Quiz: Central Limit Theorem

Suppose you collect data on men's weights. Suppose the population mean is 170 pounds and the population standard deviation is 20 pounds.

1. If a sample size of 20 is taken, what is the probability the sample mean is 176 pounds or more? Do you need to make any further assumptions to figure this out?
2. If 35 men are selected, what is the probability their average weight is more than 160 pounds? Do you need to make any further assumptions to figure this out?
3. A researcher employed by Kellogs Cereal is interested in determining whether eating Special K every morning leads to losing weight. The researcher collects a sample of 50 men and finds their average weight is 164 pounds.
 - (a) Assuming Special K has no affect on men's weights, what is the probability of finding a sample size as small or smaller than 164 pounds?
 - (b) What does your answer in (a) imply about the effectiveness of Special K at maintaining a healthy weight?