

2. The weights of adult male rhesus monkeys have a normal distribution with mean 15 pounds and standard deviation 3 pounds.

(a) What is the mean of the sampling distribution of the average weight of four randomly selected monkeys?

(b) What is the standard deviation of the sampling distribution of the average weight of four randomly selected monkeys?

(c) What is the probability that the average weight of four randomly selected monkeys is between 12 and 16 pounds?

(d) How many weights must be averaged in order to obtain a standard deviation of one pound?

3. Forty percent of Americans have type A blood.

(a) Find the mean and standard deviation of the sampling distribution of the proportion of 500 randomly selected Americans that have type A blood?

(b) Find the probability that the proportion of 500 randomly selected Americans that have type A blood is greater than 0.45.

(c) Explain why the computations used in (b) are justified.

(d) Without making any computations, explain how the standard deviation of the sampling distribution of the proportion of 250 randomly selected Americans that have type A blood would compare to the standard deviation computed in (a).

4. Waiting times (in hours) at a popular restaurant are believed to have an approximately normal distribution with a standard deviation of 1.5 hours during busy periods. The waiting times for 10 customers are given below.

1.00 1.75 1.25 1.00 2.00 1.25 1.50 1.75 1.25 1.75

- (a) Find the mean waiting time for the 10 customers
- (b) Give a 96% confidence interval for the mean waiting time.
- (c) Explain what 96% confidence means.
- (d) Without making any computations, explain how the length of a 90% confidence interval would compare to length of the confidence interval computed in (b).

5. The oxygen uptakes (in milliliters) during incubation of a random sample of 15 cell suspensions are given below.

11.1	11.2	12.2	12.8	12.9
13.2	13.2	13.7	14.0	14.1
14.1	14.5	15.2	15.4	16.0

- (a) Formulate null and alternative hypotheses to determine whether the population mean differs from 12 ml.

- (b) Make a stemplot to check for outliers or strong skewness in the data.

- (c) Compute the test statistic, and find the corresponding P -value.

- (d) Explain in simple language how to interpret the P -value found above.