

Individual Work #1

1. Navigate to rolladie.net
2. Click “roll” to roll the die. Record the outcome. Repeat until you have 10 values.
3. Create a dotplot of your ten values.
4. Find the mean of your distribution.
5. Tell Kelly your mean.

Group Work #1

In groups of 2-3, answer the following questions.

1. For homework, a professor asks his students to flip a fair coin 64 times. Find the mean and standard deviation for the sampling distribution of proportions when $n=64$.
2. A student in a statistics class claims to have tossed a fair coin 200 times and found only 42% heads. First, find the mean and standard deviation for the sampling distribution, then assess his/her claim (using z-scores and probabilities).
3. According to the Mars Corporation, blue M&Ms are supposed to make up 24% of the plain M&Ms sold. A typical bag of M&Ms has 55 candies in the bag.
 - a) Find the mean and standard deviation of the sampling distribution for the proportion of blue M&Ms if the sample size is 55.
 - b) Would it be appropriate to use a Normal model in this situation? Explain.
 - c) Find the probability that a randomly selected bag of M&Ms has less than 20% blue M&Ms.

Group Work #2

In groups of 2-3, answer the following question.

1. A large university provides enough housing for 10% of its graduate students to live on campus. The university's housing office thinks that the percent of graduate students looking on campus may be more than 10 percent. The housing office decides to survey a random sample of graduate students and 62 of the 481 respondents say that they are looking for housing on campus. On the basis of the survey data, would you recommend that the housing office consider increasing the amount of housing on campus available to graduate students?

Group Work #3

In groups of 2-3, answer the following questions.

1. A college physical education department asked a random sample of 200 female students to self-report their heights and weights, but the percentage of students with body mass indexes over 25 seemed suspiciously low. One possible explanation may be that the respondents “shaded” their weights down a bit. The CDC reports that the mean weight of 18-year-old women is 143.74 lb, with a standard deviation of 51.54 lb, but these 200 randomly selected women reported a mean weight of only 140 lb.

a) Find the mean and standard deviation of the sampling distribution model of mean weights for a sample size of 200 female students.

b) Why is the Normal model appropriate here?.

c) Based on your model in part c, does the mean weight of 140 lb seem exceptionally low to you or could this just be random sample-to-sample Variation?

The Wechsler Adult Intelligence Scale (WAIS) is a common “IQ Test” for adults. The distribution of WAIS scores for persons over 16 years of age is approximately normal with a mean of 100 and a standard deviation of 15.

a) What is the probability that the WAIS score for a randomly selected adult is 105 or higher?

b) What is the mean and standard deviation of the sampling distribution of the average WAIS score for a random sample of 60 people?

b) What is the probability that the average WAIS score for a sample of 60 people is 105 or higher?