

1. Here are some definitions from the first four sections of Chapter 1. For each definition, fill in the blank(s) with the word(s) being defined.
 - (a) A _____ has only two possible outcomes.
 - (b) The _____ is the probability of obtaining a result at least as extreme as that observed if the _____ is true.
 - (c) For a random process, a _____ is a long-run numerical property of the process.
 - (d) A result is _____ if it is unlikely to occur by random chance.
 - (e) A _____ is a number computed from a sample.
2. If you spin a coin on a table, is it more likely to land tails up than when you flip it? To investigate this, you spin a penny 50 times on a table and it lands tails up 29 times.
 - (a) What are the observational units?
 - (b) What is the observed statistic?
 - (c) Using the correct notation, state the relevant null and alternative hypotheses.
 - (d) Use the applet to conduct a simulation with 1000 repetitions. What is your estimate of the p -value?
 - (e) Use the summary stats from your simulation to compute the standardized statistic (z -score). Show your work!
 - (f) Based on this observed statistic, the approximate p -value, and the z -score, what is your conclusion?

3. Your friend claims that he can shoot free throws as well as an NBA player; you don't think he's that good. Your friend shoots 20 free throws and makes 12 of them; the NBA average for shooting free throws is 75%.

(a) What are the observational units?

(b) What is the observed statistic?

(c) Using the correct notation, state the relevant null and alternative hypotheses.

(d) Use the applet to conduct a simulation with 1000 repetitions. What is your estimate of the p -value?

(e) Use the summary stats from your simulation to compute the standardized statistic (z -score). Show your work!

(f) Based on this observed statistic, the approximate p -value, and the z -score, what is your conclusion?