
Lesson 3.2.3

- 3-63. a. Sample response: Let “girl” be heads and “boy” be tails. Flip the coin up to four times and record whether you saw a heads before the four trials end. Repeat many times.
- b. Typical simulations (based on 25 trials) will be between about 0.92 and 0.96. About 5% of the simulations result in 0.84 or less.
- c. Answers vary depending on class data: should be about 0.9375.
- 3-64. a. Use technology.
- b. Answers should be close to 0.9375.
- 3-65. Theoretically the probability is 0.9375. Make a tree diagram.
- 3-66. Yes. Problem 3-64 is likely to be closer.
- 3-67. a. Typical sets of 25 simulations will have a mean between 5.6 and 6 games.
- b. Theoretically, the series is expected to last for 5.8125 games.
- 3-68. The theoretical mean is 7.81 boards.
- 3-69. a. There is a strong positive linear association between the high temperatures on consecutive days in Mitchell’s area. An increase of one degree on any day is expected to increase the temperature the following day by 0.85°F . On average, the next temperatures are 8.72° off from the prediction made using the previous day’s model. The y-intercept of 13.2 means the model estimates the temperature to be about 13°F the day after a 0°F day, which seems reasonable.
- b. The “largest” residual value is about 17°F and it belongs to the day that was 90°F the day after a 70°F day.
- c. Mitchell’s estimate is 71°F , but he can expect actual temperatures to vary about 9°F (S) above and below that value, yielding an estimate range anywhere between 62°F and 80°F . This is not a particularly useful range, so Mitchell’s model is not ready for deployment yet!
- 3-70. a. Quantitative because each value represents a measurement, not a count in a named category.
- b. mean = 65, median = 61
- c. See histogram at right.
- 3-71. The mean will be about fifteen boards (*theoretical mean 14.55*). This is considerably more than the mean boards examined when four 3-foot boards were used, so finding four 3-foot clear boards would be easier.

