This gives 8 possible outcomes for the first three points: {HHH, HHT, HTH, HTT, THH, THT, TTH, TTT}. Notice that only 1 of the outcomes consists of the coin landing on tails three times (TTT). Thus, the probability of the older player winning all three of the points is calculated as follows.

$$P(\text{Tails Three Times}) = \frac{n(E)}{n(S)} = \frac{1}{8} = 0.125$$

Notice that the probability of the coin landing on heads all three times is also $\frac{1}{8}$.

10.R.5 Exercises

Concept Check

True/False. Determine whether each statement is true or false. If a statement is false, explain how it can be changed so the statement will be true. (**Note:** There may be more than one acceptable change.)

1. The individual result of an experiment is a probability.

2. An event is some or all of the outcomes from the sample space.

3. A single result of an experiment is an outcome.

4. Each branch of a tree diagram represents a separate possible outcome.

Applications

For each experiment, draw a tree diagram illustrating the possible outcomes and list the outcomes in the sample space.

5. Four marbles are in a box: one red, one white, one blue, and one purple. One ball is chosen.

6. There are three flavors of potato chips to choose from: original, BBQ, and cheddar. One flavor is chosen.

Writing & Thinking

7. List at least three activities that are experiments of chance.

8. Explain the benefits of using a tree diagram to determine probability.