Lesson Objectives
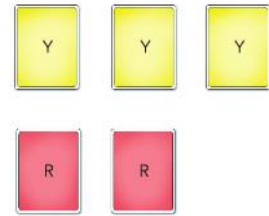
- Understand dependent events.
- Use the rules of probability to solve problems with dependent events.

Suppose there are 3 yellow cards and 2 red cards. They are shuffled and placed in a stack. You are asked to draw two cards randomly, one at a time, from the stack without looking at the cards.

Consider the 5-card scenario again. To find the probability of drawing 2 red cards one after another without replacement, first you locate the branches that will give the favorable outcome (R, R). Then you multiply the probabilities along the branches. In other words, you multiply the probability of drawing a red card in the first draw with the probability of drawing a red card in the second draw.

Example 9   Understand dependent events.

Inside a jar, there are 3 blue marbles and 7 green marbles. Rena randomly draws two marbles, one after another without replacement. Draw a tree diagram to represent the possible outcomes of this compound event.

Guided Practice

Solve. Show your work.

1 A deck of four cards with the letters D, E, E, D are placed facing down on a table. Two cards are turned over at random to show the letters. Draw a tree diagram to represent the possible outcomes for this compound event.

| D | E | E | D |

Let *D* represent the letter D and *E* represent the letter E.