

# Lesson 3 Multi-Step Problem Solving

## Multi-Step Example

Morgan rolls a number cube, twice. If the number 1 shows up at least once, Morgan wins. Otherwise, Jaclyn wins. How much greater is the probability that Morgan will win compared to Jaclyn winning? **7.SP.8b, MP 1**

- (A)  $\frac{1}{3}$       (B)  $\frac{7}{18}$       (C)  $\frac{4}{9}$       (D)  $\frac{2}{3}$

Use a problem-solving model to solve this problem.

### 1 Understand

Read the problem. **Circle** the information you know. **Underline** what the problem is asking you to find.

### 2 Plan

What will you need to do to solve the problem? Write your plan in steps.

**Step 1** Make a list to determine the \_\_\_\_\_.

**Step 2** Determine the \_\_\_\_\_ for Morgan and Jaclyn. Then \_\_\_\_\_.

### 3 Solve

Use your plan to solve the problem. Show your steps.

Use a list.

\_\_\_\_\_

\_\_\_\_\_

Determine the probabilities and then subtract.

$P(\text{Morgan wins}) = \underline{\hspace{2cm}}$        $P(\text{Jaclyn wins}) = \underline{\hspace{2cm}}$

$\underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

The probability of Jaclyn winning is \_\_\_\_\_ times greater than Morgan winning.

So, the correct answer is \_\_\_\_\_. Fill in that answer choice.

### 4 Check

How do you know your solution is accurate?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Read to Succeed!**



A number cube has six sides that are numbered 1 through 6. Use this information to help make a list.

## Lesson 3 *(continued)*

Use a problem-solving model to solve each problem.

- 1 Nicolás tosses a coin three times. If heads appears at least once, he wins. Otherwise, Manny wins. How much greater is the probability that Nicolás will win compared to Manny winning? **7.SP.8a, MP 1**

- (A)  $\frac{1}{8}$   
 (B)  $\frac{1}{2}$   
 (C)  $\frac{3}{4}$   
 (D)  $\frac{7}{8}$

- 3 Jarek randomly selects a card from a pile of 3 unique cards, replaces it, and randomly selects again. What is the probability of selecting any card three times in a row? Write the probability as a percent, rounded to the nearest tenth. **7.SP.8a, MP 1**

- 2 The table shows the colors of socks, shoes, and belts that Landon owns. If he randomly selects a pair of socks, a pair of shoes, and a belt, what is the probability that the colors will all match? Write the probability as a decimal rounded to the nearest hundredth. **7.SP.8, MP 2**

Socks	Shoes	Belt
Navy	Brown	Brown
Brown stripes	Black	Black leather
Black		Black nylon
Brown dots		
Tan		

- 4 **H.O.T. Problem** Dakota was randomly assigned a computer password, where each number can be any digit 0 through 9, but digits will not repeat. The first three digits are shown. If he randomly guesses the last two digits, what is the probability he will guess correctly? Explain. **7.SP.8a, MP 2**

7	3	1	?	?
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