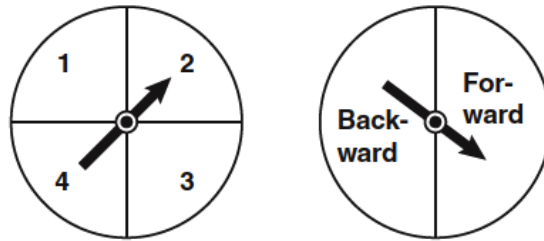# 2-7 Probability of Compound Events

Haven't we seen this before?

32 Brianna is using the two spinners shown below to play her new board game. She spins the arrow on each spinner once. Brianna uses the first spinner to determine how many spaces to move. She uses the second spinner to determine whether her move from the first spinner will be forward or backward.

Find the probability that Brianna will move *fewer than* four spaces and *backward*.

Types of Probability Statements	How many Actions?	Rule to Use
OR		
AND/THEN		

Picking Tokens Out of a Bag

A bag contains 2 red tokens, 1 blue token and 2 green tokens. You draw one of the tokens out of the bag, **replace the token** in the bag, and then draw another token.

Find P(red token *and then* blue token) with replacement

This time, you draw one of the tokens out of the bag, but **DO NOT replace the token** in the bag, and then draw another token.

Find P(red token *and then* blue token) without replacement

Let's change the numbers up and look at some more probabilities!!

A bag contains 4 red tokens, 3 blue tokens and 2 green tokens. You draw **two** tokens at random. Find each probability...

1. *P*(Re*d*, *then* Blue) with replacement	2. *P*(*Blue*, *then* Blue) without replacement
3. *P*(*Green*, *then* Red) with replacement	4. *P*(*Green*, *then* Red) without replacement
5. *P*(*Blue*, *then* Blue, *then* Red) with replacement	6. *P*(*Blue*, *then* Orange) without replacement

Some more examples

7. The following cards are shuffled and placed face down on a table.

| R | R | A | N | N | N | D | O | M | M |
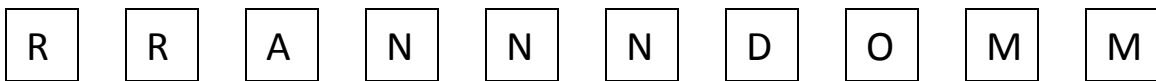
Find the P(R *and then* N) with replacement

Find the P(A *and then* M) without replacement

8. Suppose a teacher must select 2 students to represent their school at a meeting. The teacher randomly picks names from a hat that contains the names of 3 freshman, 2 sophomores, 4 juniors, and 4 seniors. Find P(a sophomore, then a freshman)

Practice 2-7   Name _____

1. Suppose you have a dark closet containing seven blue shirts, five yellow shirts, and eight white shirts. You pick two shirts at random from the closet. Find each probability.

a. P(blue then yellow) with replacing   b. P(blue then yellow) without replacing

c. P(yellow then yellow) with replacing   d. P(yellow then yellow) without replacing

e. P(yellow then white) with replacing   f. P(yellow then white) without replacing

2. Suppose you draw two tennis balls at random from a bag containing seven pink, four white, three yellow, and two striped balls. Find each probability.

a. P(yellow then pink) with replacing   b. P(yellow then pink) without replacing

c. P(pink then pink) with replacing   d. P(pink then pink) without replacing

e. P(striped then striped) with replacing   f. P(striped then striped) without replacing