REVIEW: Counting Principle

Name _____

Key Concept and Vocabulary

Event 1 can occur in m ways.
Event 2 can occur in n ways.

Event 1 followed by Event 2 can occur in $m \times n$ ways.

Multiply.

Visual Model

4 flavor choices for 1st scoop

4 flavor choices for 2nd scoop

$4 \times 4 = 16$ "two-scoop" cones

Skill Example

1. Event 1 can occur in 6 ways.
Event 2 can occur in 3 ways.

Event 1 followed by Event 2 can occur in

$6 \times 3 = 18$ ways.

Application Example

2. How many outfits can you make using 3 T-shirts and 4 pairs of jeans?

$3 \times 4 = 12$ outfits

T-shirts, jeans

You can make 12 different outfits.

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Check your answers at BigIdeasMath.com.

Find the number of ways that Event 1 can occur followed by Event 2.

3. Event 1 can occur in 5 ways.
Event 2 can occur in 6 ways.
30 ways

4. Event 1 can occur in 10 ways.
Event 2 can occur in 3 ways.
30 ways

5. Event 1 can occur in 11 ways.
Event 2 can occur in 11 ways.
121 ways

6. Event 1 can occur in 14 ways.
Event 2 can occur in 4 ways.
56 ways

Find the number of ways that Event 1 can occur followed by Event 2, followed by Event 3.

7. Event 1 can occur in 2 ways.
Event 2 can occur in 4 ways.
Event 3 can occur in 5 ways.
40 ways

8. Event 1 can occur in 8 ways.
Event 2 can occur in 7 ways.
Event 3 can occur in 6 ways.
336 ways

9. **OUTFITS** How many different outfits can you make using the T-shirts and jeans shown at the right? 20 outfits

10. **OUTFITS** How many of the outfits have the gray jeans? 4 outfits