Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Class:\_\_\_\_\_\_Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Worksheet 13.3

(1) If one event has 5 outcomes and another event has 12 outcomes, then what does $5∙12$ represent?

**In Exercises 2 and 3, use the following information.**

**You want to order a ham-and-cheese sandwich at a sandwich shop that has 5 kinds of bread, 4 kinds of cheese, and 2 kinds of ham.**

(2) How many ham-and-cheese sandwiches are possible if you are limited to one kind of bread, one kind of cheese, and one kind of ham?

(3) The sandwich shop has a pre-made ham-and-cheese sandwich. What is the probability that the sandwich has the kinds of bread, cheese, and ham that you want?

**In Exercises 4-7, use the number of outcomes of the events to find the number of ways that the events can occur together.**

(4) **Event A:** 6 outcomes (5) **Event J:** 12 outcomes

 **Event B:** 15 outcomes **Event K:** 13 outcomes

(6) **Event F:** 10 outcomes (7) **Event P:** 19 outcomes

 **Event G:** 26 outcomes **Event Q:** 15 outcomes

 **Event H:** 10 outcomes **Event R:** 4 outcomes

(8) You class is having an election. There are 13 candidates for president, 5 for vice president, 2 for secretary, and 6 for treasurer. How many election results are possible?

(9) The combinations for the lockers at your school consist of 3 numbers. Each number in the combination can be a number from 0 through 49. How many locker combinations are possible?

(10) On a digital clock, the numbers 1 through 12 are used for the hour display and the numbers 00 through 59 are used for the minute display. How many time displays are possible?

(11) Find and correct the error in finding the number of outcomes of rolling a number cube three times.

6 + 6 + 6 = 18

(12) What are the advantages of using the counting principle instead of making a tree diagram when counting possibilities?

(13) The number of ways that both events A and B can occur is 36. If event B can occur in 3 ways, in how many ways can event A occur?

(14) A T-shirt at a clothing store is available is 2 sleeve lengths, 8 colors, and 5 sizes. If your friend randomly chooses one of these T-shirts to give you as gift, what is the probability that the T-shirt is the sleeve length, color, and size that you want?

(15) A bicycle lock has a 4-digit combination. Each of the digits is a number from 1 through 9. Find the probability that the lock has a combination in which all of the digits are the same number.

(16) In a competition, 5 figure skaters will skate in a randomly assigned order. Why can’t you evaluate the product $5×5×5×5×5$ to find the number of possible orders in which the skaters can skate?