Chapter 10 Test Review   Name_____

In 1-3, decide whether the situation is an example of the counting principle, a permutation, or a combination. Then answer the question.

1. Suppose a bakery has 15 pies, 8 cakes, and 7 cookies. How many different ways are there to choose 1 pie, 1 cake, and 1 cookie?

2. Jimmy John's advertises 2 job openings for sandwich-maker. If 13 qualified students apply, in how many ways can the 2 positions be filled?

3. In how many ways can I arrange 10 cards on my table if I received 16?

4. If a locker combination consists of 3 different numbers from 0 to 39, what is the probability that you guess the combination correctly on the first try?

5. On Catalpa, 29 of 125 houses have their porch lights on. What is the probability that a house does not have their porch light on?

6. What is the sample space when you flip a coin twice? What is the probability of getting 2 heads?

7. A card is drawn randomly from a standard 52-card deck. Find the probability of drawing the given card(s).

a.   a club   b.   a 10 of clubs

c.   a black card   d.   a black card or a 10

8. Find the probability of drawing the given cards.

a.   a 6 and then a 7,
     with replacement

b.   3 aces in a row
     without replacement

9. Use Pascal's triangle to expand the binomial.

a. $(3a + 2b)^4$

b. $(-4x^2 + y)^3$

10. Find the coefficient of the x^2 term.

$$(5x+3)^3$$

11. Find the indicated probability using all of the given information.

a. $P(A) = 0.3$

$P(B) = 0.6$

$P(A \text{ or } B) = \underline{\hspace{1cm}}$
$P(A \text{ and } B) = 0.1$

b. $P(A) = 35\%$

$P(B) = \underline{\hspace{1cm}}$

$P(A \text{ or } B) = 80\%$
$P(A \text{ and } B) = 20\%$

c. $P(A) = \underline{\hspace{1cm}}$

$$P(\overline{A}) = \frac{2}{5}$$

d.   A and B are independent
$P(A) = 0.15$
$P(B) = 0.6$
$P(A \text{ and } B) = \underline{\hspace{1cm}}$

e.   A and B are dependent
$P(A) = 60\%$
$P(B|A) = \underline{\hspace{1cm}}$
$P(A \text{ and } B) = 25\%?$

12. Of 200 students at a school, 58 play football, 40 play basketball, and 33 play both. What is the probability that a randomly selected student plays either football or basketball but not both?

13. When 2 six-sided dice are rolled, what is the probability that the sum is neither 2 nor 12?

14. Calculate the probability of randomly guessing all of the correct answers on a 10-question true-or-false quiz.

15. The grades that students received on a recent Algebra exam are given in the table.

Grade	Number of Exams
A	6
B	15
C	7
D	2
E	0

a. A student's exam is randomly chosen. What is the probability that the student received a C or higher?

b. A student's exam is randomly chosen. What is the probability that the student did not receive a D?