1. 50 students were asked two survey questions:

   • Do you have a dog?

   • Do you have a cat?

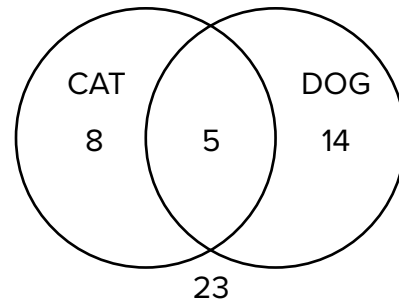   Their responses are summarized in the Venn diagram.

   a. How many students have a cat?

   b. How many students have a cat or a dog?

   c. How many students have a cat and a dog?

   d. How many students do not have a cat?

   e. How many students do not have a cat or a dog?

CAT 8   5   DOG 14

23

2. In the Venn diagram, the circle on the left represents all the whole numbers between 1 and 12 that are multiples of 2. The circle on the right represents all the numbers between 1 and 12 that are multiples of 3.

   a. Which numbers are multiples of 2?

   b. Which numbers are multiples of 3?

MULTIPLE OF 2   MULTIPLE OF 3

   c. Which numbers belong in the region where the two circles overlap? Explain your reasoning.

   d. Which whole numbers between 1 and 12 are not contained inside either circle in the Venn diagram?

   e. What is the probability that a whole number between 1 and 12, selected at random, is a multiple of two or three?

   f. What is the probability that a whole number between 1 and 12, selected at random, is not a multiple of 2?
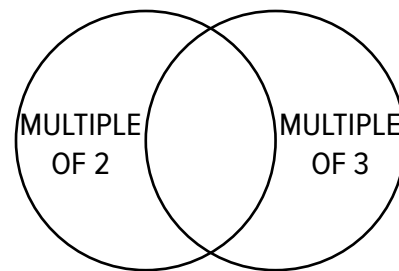
NAME _____ DATE _____ PERIOD _____

3. Two classes of elementary school students are going on a field trip, and they will be provided with a snack. Each student selects one snack option. The table summarizes the snack preference of each student in the class.

	Apple	Carrot Sticks	Peach Slices
Class A	4	6	12
Class B	7	3	14

a. What is the probability that a student selected at random prefers peach slices as a snack?

b. What is the probability that a student selected at random prefers an apple or carrot sticks as a snack?

c. What is the probability that a student in class A selected at random prefers an apple as a snack?

d. What is the probability that a student selected at random is in class B and prefers carrot sticks as a snack?

4. The table shows the results from a survey that asked 200 adults if they had a college diploma and if their annual income was more than $40,000.

	$40,000 or Less	More Than $40,000
College Diploma	44	101
No College Diploma	27	28

A person who took the survey is selected at random. **(Lesson 8-4)**

a. What is the probability that the person has a college diploma and makes $40,000 or less?

b. What is the probability that the person doesn't have a college diploma and earns more than $40,000?

5. The table shows data from a science fair experiment that studied the average growth rate of 20 samples of fungus at 70 degrees Fahrenheit and 20 samples of fungus at 80 degrees Fahrenheit. **(Lesson 8-4)**

	70 Degrees	80 Degrees
Above Average Growth Rate	3	8
Average Growth Rate	12	11
Below Average Growth Rate	5	1

a. What percentage of the samples had an above average growth rate?

b. What percentage of the samples at 70 degrees had an above average growth rate?

c. What percentage of the samples were at 80 degrees?

d. What percentage of the samples that had an average growth rate were at 80 degrees?

6. Here is a central angle that measures 1.5 radians.

Select the statement that *must* be true. **(Lesson 7-11)**

A. The area of the whole circle is 1.5 times the area of the slice.

B. The circumference of the whole circle is 1.5 times the length of the arc formed by the angle.

C. The length of the arc defined by the angle is 1.5 times longer than the radius.

D. The length of the arc is 1.5π units.