**Lab for Section 2.5(b)** Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*Use good notation and show appropriate work. Write explanations in* ***complete sentences***.

1. (a)  (b)  of 186 (c) What percent of 73 is 39?

2. A certain store has 100 bikes for sale. Twenty-four of these bikes are red and thirty-two are ten-speed. Eight of the ten-speed bikes are red.

*U*

*R*

*T*

 (a) How many bikes are red or ten-speed?

 (b) How many bikes are not red? (c) How many bikes are red, but not ten-speed?

 (d) How many bikes are not red or (e) How many bikes are neither red nor ten-speed?
 not ten-speed?

3. In a survey of 80 people at a picnic, the following data were collected. Thirty-six people drank lemonade; 33 people drank coffee; 31 people drank soda pop; 16 drank soda pop and coffee; 14 drank coffee and lemonade; everyone who drank both soda and lemonade also drank coffee, and only 5 people drank all three of these beverages.

*U*

*L*

*C*

*S*

 (a) How many people did not drink any of the three mentioned beverages?

 (b) How many people did not drink coffee?

 (c) How many people drank only lemonade?

 (d) How many people drank coffee or soda pop?

 (e) How many people drank neither coffee nor lemonade?

 4. The results of a survey of 100 MSUM students living in a dorm on items they own. The results were:

20 own a computer; 35 own an ipad; 70 own a refrigerator; 45 own a computer or an ipad; 20 own a refrigerator and an ipad; 9 own a refrigerator and a computer, but not an ipad; and 5 own all three. Symbolize with proper set notation and answer each question.

*U*

*C*

*I*

*R*

 (a) How many students did not own any of the three items?

 (b) How many students own a refrigerator and a computer?

 (c) How many students own an ipad or a refrigerator?

5. Let *U* = {Amy, Beth, Cece, Dot, Eve, Faith, Gail}. The set of students taking art is *A* = {Beth, Dot, Eve}. The set of students taking business is *B* = {Amy, Dot, Gail}. The set of students taking chemistry is
C = {Eve, Faith, Gail}. Find:

(a) (*A* ∪ *B*) – *C* (b) *A* – *B*ʹ (c) *A* × *B*

(d) Describe the sets found in (a) and in (b) in words.

6. Using the sets from problem 5, determine whether the following are true or false.

 (a) Amy ∈ B (b) {Amy}∈ B (c) {Eve, Faith, Gail} ⊂ C (d) {Eve, Faith, Gail}⊆ C

7. During the half-time of a basketball game, you won the chance to shoot a basketball from three locations to win some money. If you make the layup, you win $1. If you make the free throw, you win $10. If you make it from center court, you win $100.

(a) List all the possible amounts you can win. Organize your list in a systematic manner. [What set concept is this?]

 (b) What is the greatest amount you can win? (c) What is the least amount you can win?