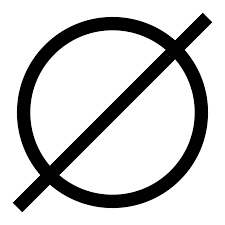
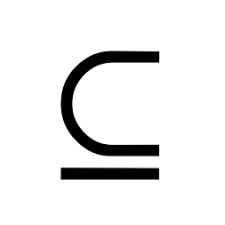
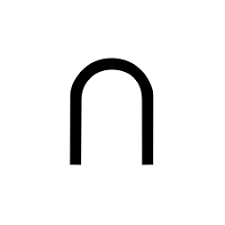
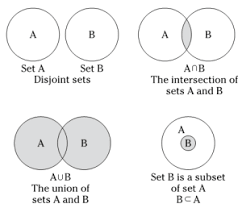
**Lesson 5 Notes: Sets and Venn Diagrams**

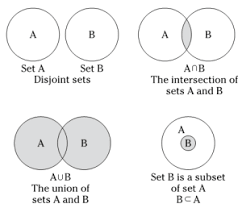
Definition of **Set**:

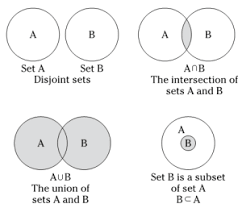
Definition of **Venn Diagram**:

**Relationships Between Sets:**

**Disjoint**  **Subset**  **Overlapping/Intersecting** 

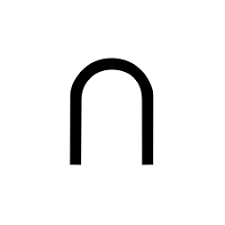
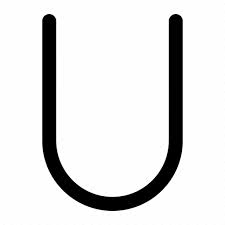


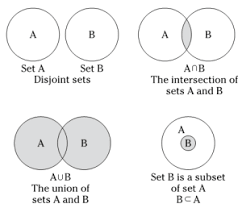
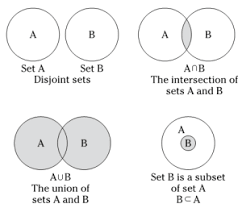




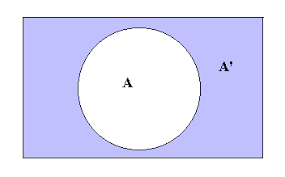
**Operations on Sets:**

**Intersection** **Union** **Complement**

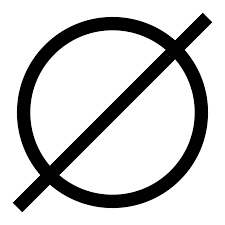
 

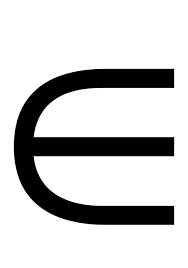
 

A’ Ac



**Other Symbols on Sets:**





**Example 1**:

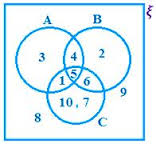
Using the whole numbers 1 to 10, let

Set A = {1, 3, 5, 7, 9}

Set B = {6, 7, 8, 9, 10}

1. Are these sets disjoint, subset, or overlapping?
2. Write the correct symbol that means “5 is an element of Set A”.
3. Draw a Venn Diagram to represent this problem:

**Example 2:**

[](http://www.google.com/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&cad=rja&uact=8&ved=0CAcQjRw&url=http://www.math-only-math.com/examples-on-Venn-diagram.html&ei=XArAVPHVFoufgwSNooKYDg&bvm=bv.84116906,d.eXY&psig=AFQjCNG27KRNXAyMT2Y1e4YPZYgjOVb4WQ&ust=1421958094972646)

Name the elements in the given sets:

1. Set A = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Set C = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. A’ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. B C = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. B C = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. (A  B)  C = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Example 3:**

Set A = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10}

Set B = {2, 4, 6, 8, 10}

Set C = {1, 3, 5, 7, 9}

Set D = {1, 2, 3, 4, 5}

1. Set A and Set B
2. Subset, disjoint, overlapping?
3. Write the correct symbol.
4. Draw a picture.
5. Set B and Set C
6. Subset, disjoint, overlapping?
7. Write the correct symbol.
8. Draw a picture.
9. Set C and Set D
10. Subset, disjoint, overlapping?
11. Write the correct symbol.
12. Draw a picture.
13. Write the element(s) in the set C D
14. Write the element(s) in B’.
15. Write the element(s) in C D’.
16. Write the element(s) in B C.
17. Write the element(s) in B C.
18. Write the element(s) in C D.

**Sets of Numbers:**

Natural

Whole

Integers

Rational

Irrational

Real

<https://pressbooks-dev.oer.hawaii.edu/math111/chapter/introduction-2/>

**Draw a Venn Diagram** **Example:** Identify the set(s)

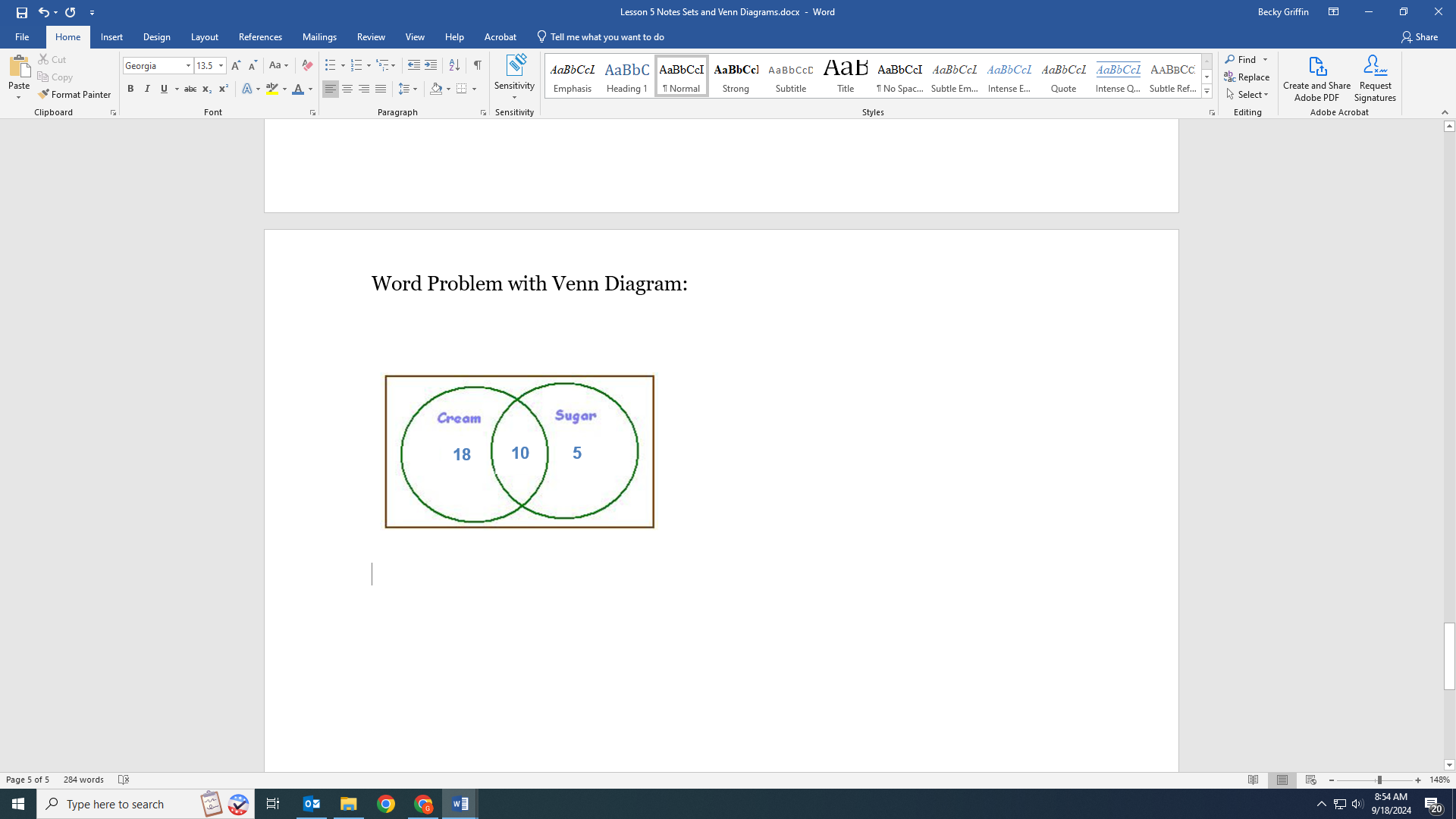
to represent these sets of Numbers: of numbers to which each

given number belongs:

1. -8
2. 
3. 
4. 
5. 0

**Word Problem #1 with Venn Diagram:**

A survey asked 60 coffee drinkers whether they like cream or sugar in their coffee. According to the Venn diagram below, how many like:



a) Cream?

b) Sugar?

c) Sugar but not cream?

d) Cream but not sugar?

e) C S (Cream and sugar)?

f) C S (Cream or sugar)?

g) (C S)’ means Neither (plain)?

**Word Problem #2 with Venn Diagram:**

A survey asked coffee drinkers whether they like cream or sugar in their coffee. Out of twenty-five students surveyed, 11 like cream and 19 like sugar. If 7 students like both cream and sugar, how many students like their coffee plain (no cream or sugar)? Draw a Venn Diagram and answer the question.