Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Quiz 1

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Instructions: Complete the following problems. Show all of your work. If you run out of room, use the back of the sheet and label the problem with the corresponding number. Turn in your work at the front desk when you are finished.

**Part 1: Operations and Relations**

**S** =

**A** = { 2 *, 4 , 6 , 8 , 10* }

**B** = { *2 , 4 , 8* }

**C** = { 1 , 2 , 3 , 5 , 7 }

**D** = { *2 , 4 , 9* }

**E** = { *1 , 3 , 5 , 7 , 9* }

1. Find the following sets. Write your answer in *List Notation.*

a.

b.

c.

d.

e.

f.

g.

2. Determine whether the following propositions are *true* or *false*. Circle the correct answer.

a. **TRUE** |  **FALSE** :

b. **TRUE**  | **FALSE** :

c. **TRUE** | **FALSE** :

d.  **TRUE**  | **FALSE** :

e. **TRUE** | **FALSE** :

**Part 2 : Venn Diagrams**

1. Draw a Venn Diagram for the following scenario and then answer the questions below: One hundred people were surveyed regarding their entertainment preferences, specifically if they like *Star Trek* or *Star Wars*. Fifty-five people liked *Star Wars*. Forty people liked *Star Trek* but not *Star Wars*. Twenty liked both *Star Trek* and *Star Wars*

a. Do more people like *Star Trek* or *Star Wars*? How many more?

c. How many people like neither *Star Trek* nor *Star Wars?*

3. Draw a Venn Diagram for the following scenario and then answer the questions below: A diligent researcher read a series of comic books with each one featuring a different superhero. He found that twenty of the featured superheroes can fly, thirty-eight of them have super strength, thirteen of them can both fly and have super strength, while eight can neither fly nor have super strength. Construct a Venn Diagram for Shawn and then answer the following questions.

a. How many superheroes can fly but do not have super strength?

b. How many superheroes have super strength but cannot fly?

c. How many superheroes have super strength or can fly?

d. How many comic books did the diligent researcher read?

**Extra Credit:**

EC. Write the sets **A**, **B**, **C**, **D** and **E** in *Quantifier Notation.*

Hint: