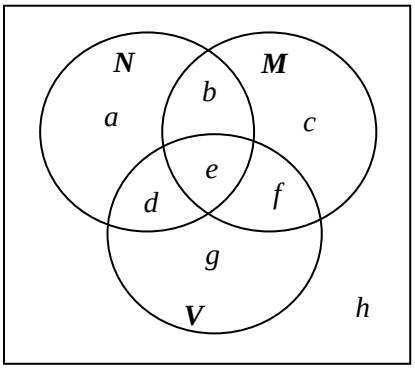
Last Name _____ **First Name** _____ **UIN** _____**141-** _____

Part I

A survey of 250 retirees was conducted regarding whether they would like to visit the states of New York (*N*), Massachusetts (*M*), or Virginia (*V*). Use the following information to complete the Venn diagram with the number of retirees who match the characteristics of each region.



- 15 would like to visit only Virginia
- 142 would like to visit Massachusetts
- 100 would like to visit New York or Massachusetts, but not Virginia
- 41 would like to visit Virginia, but not Massachusetts
- 85 would like to visit exactly two of these states
- 92 would like to visit New York and Massachusetts
- 19 would like to visit Massachusetts and Virginia, but not New York

1. "A survey of 250 retirees was conducted…"
Write the equation that represents this statement. _____
HINT: the answer is a+b+c+d+e+f+g+h = 250

2. "15 would like to visit only Virginia"
Write the equation that represents this statement. _____

3. "142 would like to visit Massachusetts"
Write the equation that represents this statement. _____

4. "100 would like to visit New York or Massachusetts, but not Virginia"
Notice the word "or" and the words "but not" in the statement above.
Write the equation that represents this statement. ____+ ____+ ____ = ____

5. "41 would like to visit Virginia, but not Massachusetts"
Write the equation that represents this statement. _____
Hint: No information is given as to whether or not they would like to visit New York.

6. "85 would like to visit exactly two of these states"
Write the equation that represents this statement. _____

7. "92 would like to visit New York and Massachusetts"
Write the equation that represents this statement. _____

8. "19 would like to visit Massachusetts and Virginia, but not New York"
Notice the word "and" along with the words "but not" in the statement above.
a. Write the equation that represents this statement. _____

9. Solve for the values of each variable
a = ___ b = ___ c = ___ d = ___ e = ___ f = ___ g = ___ h = ___

10. How many retirees would like to visit exactly one of these states? _____

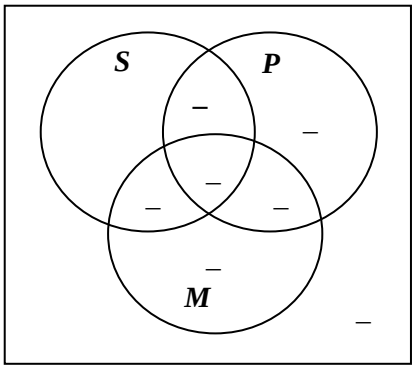
11. How many retirees would like to visit at least one of these states? _____

12. How many retirees would not like to visit at least two of these states? _____

Part II

A survey of 1000 pizza-eaters was conducted to determine if they like sausage (*S*), pepperoni (*P*), or mushrooms (*M*) on their pizza. Use the following information to complete the provided Venn diagram with the number of people located in each section of the diagram.

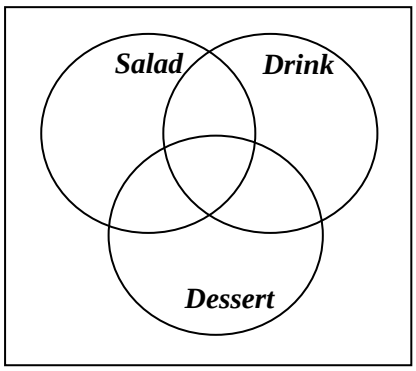
- 177 like none of these pizza toppings
- 301 like mushrooms
- 439 like sausage
- 72 like pepperoni and mushrooms, but do not like sausage
- 289 like sausage, but do not like mushrooms
- 463 like pepperoni
- 137 like only sausage



Part III

At a party, it was noticed that

- 7 guests brought a salad, a dessert and drinks
- 17 guests brought exactly two items
- 23 guest brought drinks
- 21 guests did not bring a salad
- 9 guests brought only a dessert
- 11 guests did not bring a drink or a dessert
- 10 guests brought only a salad and a drink
- 11 guests brought a drink and a dessert



How many guests were at the party? _____