

Lab Assignment #16

This lab is due at 12:30 PM on Wednesday, 10/30 and is worth 10 points. This part may be done individually, or in a group of 2, 3, or 4 people.

For each problem, draw a Venn Diagram, and find the number of elements in each region.

1) Two sets A and B.

The universe has 35 elements.

Set A has 23 elements.

Set B has 16 elements.

Set $A \cap B$ has 10 elements.

2) Two sets A and B.

The universe has 500 elements.

Set A has 250 elements.

Set $A \cap B$ has 50 elements.

Set $A^c \cap B$ has 70 elements.

3) Three sets A, B, and C.
The universe has 62 elements.
Set A has 32 elements.
Set B has 33 elements.
Set C has 26 elements.
Set $A \cap B$ has 15 elements.
Set $A \cap C$ has 11 elements.
Set $B \cap C$ has 16 elements.
Set $(A \cap B) \cap C$ has 9 elements.

4) Three sets A, B, and C.
The universe has 31 elements.
Set $(A \cup B) \cup C$ has 28 elements.
Set $A \cup B$ has 23 elements.
Set $A \cup C$ has 17 elements.
Set $B \cup C$ has 27 elements.
Set $A \cap B$ has 5 elements.
Set $A \cap C$ has 8 elements.
Set $B \cap C$ has 2 elements.

5) Four sets A, B, C, D.
Universe has 120 elements.
A has 43 elements.
B has 54 elements.
C has 47 elements.
D has 54 elements.
A \cap B has 18 elements.
A \cap C has 20 elements.
A \cap D has 19 elements.
B \cap C has 22 elements.
B \cap D has 26 elements.
C \cap D has 20 elements.
(A \cap B) \cap C has 10 elements.
(A \cap B) \cap D has 5 elements.
(A \cap C) \cap D has 12 elements.
(B \cap C) \cap D has 11 elements.
((A \cap B) \cap C) \cap D has 3 elements.

