**Applications of College Algebra**

**Chapter 2.4 – Set Operations and Venn Diagrams with Three Sets**

**Set Operations with Three Sets**

Given U = {1, 2, 3, 4, 5, 6, 7, 8, 9}

 A = {1, 2, 3, 4, 5}

 B = {1, 2, 3, 4, 6}

 C = {2, 3, 4, 6, 7}

Find each of the following sets:

1. A ∩ (B ∪ C)
2. (A ∪ B) ∩ (A ∪ C)
3. A ∪ (B ∩ C)

Given U = {a, b, c, d, e, f}

 A = {a, b, c, d}

 B = {a, b, d, f}

 C = {b, c, f}

Find each of the following sets:

1. A ∩ (B ∪ C)
2. (A ∪ B) ∩ (A ∪ C)
3. A ∪ (B ∩ C)

**Determining Sets from a Venn Diagrams with Three Intersecting Sets**



1. A =
2. A ∪ B =
3. B ∩ C =
4. Cʹ
5. A ∩ B ∩ C

**Proving the Equality of Sets**

Regardless of which set we choose for A and B in universal set U,

(A ∩ B)ʹ = Aʹ ∪ Bʹ



**Homework: Exercise 2.4 # 1-77 odd**