Notes: *The complement symbol is not possible to create on Microsoft word, instead I am using underscores such that the complement of A = \_A\_*

3.1.2:

1. false
2. true
3. true
4. true
5. false
6. true
7. false
8. true
9. true

3.1.5:

1. {-2, -1, 0, 1, 2} = {x∈Z: -2 ≥ x ≤ 2}
2. {3, 6, 9, 12, …} = {x∈Z: x is a multiple of 3}

3.2.2:

1. N/A
2. P(1,2) = {∅, {1}, {2},{1,2}

3.2.4:

1. N/A
2. {{2}, {1,2}, {2,3}}

3.2.5:

1. false
2. true
3. need more information
4. false
5. need more information
6. need more info

3.3.1:

1. N/A
2. N/A
3. N/A
4. {-5, -3, 0, 1, 4, 17}
5. {1}
6. N/A
7. {-5, -3, 1, 17}

3.3.4:

1. {b}
2. {{a}, {b}, {c}, {a, b}, {a, b, c}
3. ∅
4. {{{a}, {b}, {a, b}}, {{b}, {c}, {b, c}}}

3.4.2:

1. {5, 6, 7}
2. is the set of elements that are a member of exactly one of A, B, and C

3.4.5:

1. A
2. ∅
3. Not enough information given
4. ∅
5. Not enough information given

3.5.2:

1. N/A
2. (B ∪ A) ∩ (\_B\_ ∪ A) = A
   1. communitive law
   2. (A ∪ B) ∩ (A ∪ \_B\_) = A
   3. Distributive law
   4. A ∪ (B ∩ \_B\_) = A
   5. Complement law
   6. A ∪ (∅) = A
   7. Identity law
   8. A = A
3. N/A
4. N/A
5. N/A
6. A ∩ (B ∩ \_B\_) = ∅
   1. Complement law
   2. A ∩ (∅) = ∅
   3. Domination law
   4. ∅ = ∅

3.5.4:

1. A – (B ∩ A) = A - B
   1. Subtraction law
   2. A ∩ \_(B ∩ A)\_ = A – B
   3. De Morgan’s law
   4. A ∩ (\_B\_ ∪ \_A\_) = A – B
   5. Distributive law
   6. (A ∩ \_B\_) ∪ (A ∩ \_A\_) = A – B
   7. Complement law
   8. (A ∩ \_B\_) ∪ (∅)= A – B
   9. Identity law
   10. A ∩ \_B\_ = A – B
   11. Subtraction law
   12. A ∩ \_B\_ = A – B

3.6.3:

1. false
2. N/A
3. false
4. N/A
5. true

3.6.4:

1. {++, +-, -+, --}
2. {000, 001, 011, 111, 110, 100, 101, 010}

3.6.5:

1. 128
2. 64

3.7.3:

1. no, x = 2
2. yes
3. yes