1. **Ch2.1 Exercise #1**
   1. {-1, 1}
   2. {1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11}
   3. {1, 4, 9, 16, 36, 49, 64, 81}
2. **Ch2.1 Exercise #2**
3. **Ch2.1 Exercise #8**
4. **Ch2.1 Exercise #22**
   1. Power set
   2. Power set
   3. Not a power set
   4. Power set
5. **Ch2.1 Exercise #36**
6. **Ch2.2 Exercise #3** Let and
7. **Ch2.2 Exercise #6**
   1. Proof by Contradiction
9. Definition of a subset
10. Definition of empty set and union cardinality
11. Definition of a subset

**7b.**

1. Assuming U is the set of all possible elements
2. Definition of the Universal Set
3. **Ch2.2 Exercise #12** 
   * + 2. Definition of intersection
       3. All elements of Z were already in A
4. **Ch2.2 Exercise #16**
   1. (
      1. Take all elements of A out of B
      2. Add all elements of A to exclusive elements of B
5. **Ch2.2 Exercise #24**

1.

2.

3. Substitution

4.

5.

6.

7.

8.

9.

10.

1. **Ch2.3 Exercise #1**
   1. is not defined in when
   2. is not defined in when
   3. is not a function because every has two possible results
2. **Ch2.3 Exercise #7**
3. **Ch2.3 Exercise #9**
   1. 1
   2. 0
   3. 0
   4. -1
   5. 3
   6. -1
   7. 1
   8. 1
4. **Ch2.3 Exercise #19**
   1. Bijection
   2. Not a bijection
   3. Bijection
   4. Not a bijection
5. **Ch2.3 Exercise #49**

Even integer: 2k Odd Integer: 2k + 1

* + - 1. If n is even this n = 2k
      2. If n is odd n = 2k + 1

1. **Ch2.4 Exercise #2**
   1. 7
2. **Ch2.4 Exercise #7**
   1. where
3. **Ch2.4 Exercise #13**
   1. 20
   2. 11
   3. 30
   4. 511
4. **Ch2.4 Exercise #19**
   1. Cancel out terms
   2. Rearrange terms
5. **Ch2.4 Exercise #34**
   1. Countable

The set of integers not divisible by 3 is {… ,-5,-4,-2,-1,1,2,4,5, … } this set could be listed as …-5, -5, -2, -1, 1, 2, 4, 5, … endlessly and therefore is one-to-one with the set of natural numbers

* 1. Countable

The set of integers divisible by 5 is and the subset of that which is also not divisible by 7 is which can be listed as such and is therefore one-to-one with the set of natural numbers

* 1. Countable  
     The set includes which is listed as -11.111, -11.11, -11.1, -11, -1, 1, 11, 11.1, 11.11, 11.111, … , which can also be mapped to and is one-to-one with the set of natural numbers
  2. Not Countable