Lab questions

1. Among 32 dieters following a similar routine, 18 lost weight, 5 gained weight, and 9 remained the same weight. How many neither gained nor lost weight

2. Find the indicated set if S={1,2,3,4,5,6,7,8,9,10} and the following are subsets of S
   A={1,2,3,4,5,6,7} B={2,4,6,8} C={7,8,9,10}

   (a) $A \cup B$ (d) $A \cup C$ (h) $A \cup (B \cap C)$
   (b) $A \cap B$ (e) $A \cap C$ (i) $(B^c \cap C)$
   (c) $B \cup C$ (f) $A \cup B \cup C$ (j) $A^c \cup (B^c \cap C)$
   (d) $B \cap C$ (g) $A \cap B \cap C$ (k) $A^c \cap (B^c \cup C)$

3 A survey of 50 randomly selected customers at a supermarket showed that 10 purchased milk, butter and eggs: 14 purchased milk and butter; 13 purchased milk and eggs: 12 purchased butter and eggs: 23 purchased milk; 21 purchased butter and 12 did not purchase any of these items.
   (a) How many people bought:
      (i) only milk
      (ii) only butter
      (iii) only eggs?
      (iv) eggs?
      (v) milk and butter but no eggs?
      (vi) milk butter or eggs?
   (b) How many people did not buy eggs?

4. A survey of 50 randomly selected customers at a supermarket showed that 14 purchased milk and butter; 2 purchased butter and eggs; 23 purchased milk; 21 purchased butter and 12 did not purchase any of these items (milk, butter, eggs). Further, no one purchased milk and eggs. How many people purchased:
   (a) only eggs?
   (b) eggs?
   (c) milk and butter?
   (d) milk and eggs?

5. Express the interval in set builder form and graph
   (a)(-3,0) (b) (2,8] (c) [-6,-1/2) (d)[2, ∞] (e) (-∞,1)

6. Find the interval and write in set builder form
   (a) $(3,5] \cap [2,6)$ (b) $(-2,1) \cup [0,2]$
   (c) $[2,4] \cap (1,5)$ (d) $(-3,2) \cap [2.4]$
   (d) $[-1,2] \cup (3,5)$ (e) $(-2,0) \cap [-3,1)$

Do all the questions in the text. (1.1-1.24). Make sure you know how to prove the theorems.