Math 1015   HW #5

#2, 4, 6, 8

#2 a

	3	5	2
A	✓	✓	✓
B		✓	
C	✓		
D			✓

A: 3+5+2 = 10
B: 5
C: 3
D: 2

A wins

b   Top votes are:

$$\frac{3}{A} \quad \frac{5}{B} \quad \frac{2}{D}$$

$3/10$ votes are for A,
so   A will win with probability 30%.

B ———————————— 50%.
C ———————————— 0%.
D ———————————— 20%.

#4

My own answer: I think plurality is too simple to accurately reflect people's opinions, and gives huge advantages to both of the 2 major parties. So for those reasons I don't like plurality very much. I think RCV does a pretty good job of addressing these two issues, so I would prefer RCV over plurality for use in real life. I especially like that RCV allows voters to express their opinions by ranking rather than just choosing 1 person to vote for. But RCV has some problems too (not monotonic and does not always choose the Condorcet winner), and there are other similar systems which are just as good or better (like BTR-IRV) so I would never suggest RCV as some kind of grand solution. To me it's a small step in a positive direction.

I like approval voting a lot, though I worry that in real-life politics it gives huge advantages to middle-of-the-road candidates. This might be good in some situations but bad in other situations, and I'm not sure exactly how I feel about it.

(Obviously I don't like dictatorship. I also dislike Borda & Condorcet's method. Borda is bad because it's too manipulable, and the Condorcet method is bad because it often doesn't choose a winner.)

#6   [18 : 6, 4, 4, 3, 2, 1]

  a   No ~ none of the voters have 18 by themselves

  b   6, 4, 4, and 3 all have veto power,
       since you can't get to 18 without using them.
       For ex: without 3, the rest only add up to 17,
            so the 3 is necessary.

  c   No dummies! Even the 1 can make a difference sometimes,
            like in   6 + 4 + 4 + 3 + 1 = 18.

#7   [15 : 10, 7, 3]
             A B C

  perms   weights   pivotal
                                      B
  A B C   10 7 3
                                      B
  A C B   10 3 7
                                      A
  B A C   7 10 3
                                      A
  B C A   7 3 10
                                      B
  C A B   3 10 7
                                      A
  C B A   3 7 10

          A: 3/6 = 50%
          B: 3/6 = 50%
          C: 0/6 = 0%