

Math 1015 HW#4

1, 2, 3, 5

#1 [12: 8, 7, 1]

Here, the only way to get to 12 is by using both the 7 & 8. Since they must both go together, they have the same amount of power.

#2 [15: 10, 3, 3]

a No dictator, since no weight is 15 or more.

b All of them have veto power, since you must use all of them to reach 15.

c None is a dummy. For example all of them are important in $10+3+3=16$.

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

a No dictator, since no weight is 18 or more.

b 6 has veto power, since all others together only make 14.
So 6 is needed to get to 18.

Similarly each 4 has veto power, since the others only make 16.
Same for the 3.

But 2 & 1 do not have veto power.

c There are no dummies. Even the 1 is sometimes important,
like in $6+4+4+3+1=18$

#5

- a The quota is 270. This is how much you need to win.
- b No state is a dictator. This would mean one state has 270 all by itself, which isn't true.
- c No state has veto power because no state is necessary in order to win. CA is the biggest state, but it's possible to win the presidency even if you lose CA.
- d No state is a dummy, since even the small states can matter in some situations.