

Practice--Weighted Voting (Weights and Coalitions)

voting system	quota	# of voters	weight
1. [5: 1, 1, 1, 1, 1]	5	5	5
2. [15: 5, 4, 3, 2, 1]	15	5	15
3. [11: 10, 3, 4, 5]	11	4	22
4. [6: 6, 1, 2, 2]	6	4	11
5. [15: 1, 2, 3, 3, 4]	15	5	13
6. [11: 1, 2, 3, 4]	11	4	10
7. [12: 1, 3, 5, 7]	12	4	16
8. [16: 1, 5, 7, 9]	16	4	22
9. [25: 4, 4, 6, 7, 9]	25	5	30
10. [21: 3, 5, 6, 8, 9]	21	5	31
11. [51: 20, 20, 20, 10, 10]	51	5	80
12. [67: 15, 15, 15, 15, 10, 10]	67	6	80

13. [6: 6, 1, 2, 2] Who is the dictator? Who are the dummies?
 P_1 P_2, P_3, P_4

14. [11: 10, 3, 4, 5] Who is the dictator? Who are the dummies?
 none P_2, P_3

15. [12: 1, 3, 5, 7] Who has veto power? Who are the dummies?
 $P_3 \& P_4$ $P_1 \& P_2$

16. The Theater Guild consists of Performers, Technicians, and Support Staff. Representation on the guild is proportional to the number in each group, and the representatives of each group tend to vote in a bloc. A simple majority is required to pass a resolution. Assume there are 5 performers, 4 technicians, and 2 members of the support staff on the guild. List all of the possible coalitions with weights. Which are winning coalitions? Which voters are critical in the winning coalitions?

$$[6: \underset{P}{5}, \underset{T}{4}, \underset{S}{2}]$$

total votes = 11

$\frac{1}{2}(11) = 5.5$

coalition	wt	winning?	crit. voters
P	5	no	—
T	4	no	—
S	2	no	—
PT	9	yes	P, T
PS	7	yes	P, S
TS	6	yes	T, S
PTS	11	yes	none