Soutions to Apportionment Homework Problems

19a		minutes	% minutes	quota	initial apportionment	total apportionment
	Bob	54	0.054	0.594	0	0
	Peter	243	0.243	2.673	2	3
	Ron	703	0.703	7.733	7	8
	total	1000				

19b		minutes	% minutes	quota	initial apportionment	total apportionment
	Bob	56	0.051	0.560	0	1
	Peter	255	0.232	2.550	2	2
	Ron	789	0.717	7.890	7	8
	total	1100				

19c illustrates population paradox, Bob's minutes increased by 2/54 = .037, Peter's minutes increased by 12/243 = .049, Peter's is increasing faster than Bob's, but Peter loses one candy in the total apportionment, but Bob gains one.

20a		minutes	% minutes	quota	initial apportionment	total apportionment
	Bob	54	0.054	0.54	0	1
	Peter	243	0.243	2.43	2	2
	Ron	703	0.703	7.03	7	7
	total	1000				

20b		minutes	% minutes	quota	initial apportionment	total apportionment
	Bob	54	0.054	0.594	0	0
	Peter	243	0.243	2.673	2	3
	Ron	703	0.703	7.733	7	8
	total	1000				

20c illustrates Alabama paradox, adding one candy bar to the total available made Bob lose a candy bar.

21a		minutes	% minutes	quota	initial apportionment	total apportionment
	Bob	54	0.054	0.594	0	0
	Peter	243	0.243	2.673	2	3
	Ron	703	0.703	7.733	7	8
	total	1000				

21b		minutes	% minutes	quota	apportionment	apportionment
	Bob	54	0.034	0.581	0	1
	Peter	243	0.154	2.615	2	3
	Ron	703	0.445	7.564	7	7
	Jim	580	0.367	6.241	6	6
	total	1580				

20c illustrates new states paradox, added a new "state" (Jim), with their fair share of candy bars, but Ron lost one and Bob gained one, even though their individual minutes had not changed.