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Five pirates discover a chest full of 100 gold coins. The pirates are ranked by their years of service, Pirate 5 having five years of service, Pirate 4 four years, and so on down to Pirate 1 with only one year of deck scrubbing under his belt. To divide up the loot, they agree on the following:

The most senior pirate will propose a distribution of the booty. All pirates will then vote, including the most senior pirate, and if strictly more than half the pirates on board accept the proposal, the gold is divided as proposed. If not, the most senior pirate is executed, by a sixth person. The executioner is paid 20 gold pieces per execution. Then the process starts over with the next most senior pirate until a plan is approved.

These pirates are not your ordinary swashbucklers. Besides their democratic leanings, they are also perfectly rational and know exactly how the others will vote in every situation. Emotions play no part in their decisions. Their preference is first to remain alive, and next to get as much gold as possible and finally, if given a choice between otherwise equal outcomes, to have fewer pirates on the boat.

The most senior pirate thinks for a moment and then proposes a plan that maximizes his gold, and which he knows a majority of the others will accept. How does he divide up the coins?

A variant: How would it work if a tie vote is considered to be sufficient for acceptance?

Another variant: How would it work if there is no executioner, the doomed pirate simply walks the plank, and things continue with still 100 pieces of gold?

What plan would the most senior pirate propose on a boat full of 15 pirates? (Try this version first with tie votes ok, and no executioner.)