

Social*Networks

QUIZ #9

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Q1. [10] Everyone in a group pays \$1 to enter the following competition. Each person has to write down on a piece of paper a number from 0 to 100 inclusive. Calculate the average of all of these numbers and then take two thirds. The winner, who gets all of the entrance fees, is the person who gets closest to this final number. The players know the rule for determining the winner, and they are not allowed to communicate with each other. What number should YOU submit?

SOLN.1 *Suppose you guessed a number that lies above 66.67, then it cannot be the right answer as it is weakly dominated for everyone since it cannot possibly be $\frac{2}{3}$ of the average of any guess. These can be eliminated. Once these strategies are eliminated for every player, any guess above 44.45 is weakly dominated for every player since no player will guess above 66.67 and $\frac{2}{3}$ of 66.67 is approximately 44.45. This process will continue until all numbers above 0 have been eliminated. This degeneration does not occur in quite the same way if choices are restricted.*

Q2. [5] We change the rule: Now, each person has to write down on a piece of paper a whole number (integer) from 0 to 100 inclusive. Will you change the number YOU submit?

SOLN.2 *The solution changes, if choices are restricted to the integers between 0 and 100. In this case, all integers except 0 and 1 vanish from the possible set of solutions; it becomes advantageous to select 0 if one expects that at least $\frac{1}{4}$ of all players will do so, and 1 if otherwise. It is now closely related to the so-called "consensus game," where one wins by being in the majority.)*