Pr. 7 Martingale strategy for gambling. Given a roulette table with 18 red, 18 black, and 2 green outcomes all equally probable.

The Martingale strategy is to double down after each loss so assuming you start with $15
Bet $1 on red. If red appears quit. Otherwise,
Bet $2 on red. If red appears quit. Otherwise,
Bet $4 on red. If red appears quit. Otherwise,
Bet $8 on red. If red appears quit. Otherwise,
You are broke so quit.

Let $X$ denote your winnings (this can be negative for example if you are broke).
Compute

(1) The probability distribution $P(x)$
(2) The probability $P(x > 0)$
(3) Is this a good strategy and why or why not?
(4) If you start with 400,000 million dollars and play the above strategy what is the probability you win $1 and the probability you lose everything.