Exercise 9.3. The unit price of a certain commodity evolves randomly from day to day with a general downward drift but with an occasional upward jump when some unforeseen event excites the markets. Long term records suggest that, independently of the past, the daily price increases by a dollar with probability 0.45, declines by 2 dollars with probability 0.5, but jumps up by 10 dollars with probability 0.05. Let C_0 be the price today and C_n the price n days into the future. How does the probability $P(C_n > C_0)$ behave as $n \to \infty$?

Exercise 9.4. The European style roulette wheel has the following probabilities: a red number appears with probability $\frac{18}{37}$, a black number appears with probability $\frac{18}{37}$, and a green number appears with probability $\frac{1}{37}$. Ben bets exactly \$1 on black each round. Explain why this is not a good long term strategy.