[nex74] Bad luck: waiting for the worst

Harry's share of bad luck on any given day m is measured by a random number $0 < X_m < 1$. How many days, on average, does Harry have to wait, until his luck is worse than yesterday's ($m = 0$)?

Hint: Calculate the probabilities for respite on days $m - 1$ and m. The probability P_m for the worst luck occurring on day m is the difference. Check the normalization of P_m and calculate $\langle m \rangle$, which turns out to be pretty good news.

Solution: