Review of elementary probability

1. In an experiment a die is thrown repeatedly until a six turns up. When that happens the experiment is stopped.
   (a) What is the probability distribution function, \( p(k) \), that the experiment will last \( k \) throws?
   (b) Show that the total probability is \( \sum_{k=1}^{\infty} p(k) = 1 \).
   (c) What is the most likely number of throws that will need to be done in this experiment?
   (d) What is the average number of throws, \( \langle k \rangle \), that will need to be done?
   (e) What is the standard deviation, \( \Delta k \)?

2. Problem 1.11 in Griffiths

3. Problem 1.16 in Griffiths

4. Suppose the wave function of a particle of mass \( m \) is given by
   \[
   \Psi(x, t) = ae^{ibt - cx^2},
   \]
   where \( a, b, \) and \( c \) are positive constants. Find the potential in which the particle moves.

Found an error or need a clarification? Email the instructor at sergiy.bubin@nu.edu.kz