4. Rainforest is a massive shipping company whose proportion of failed shipments is 0.0032.

   (a) Compute the probability that the number of successful shipments until the first failure is at most 21.

   (b) If $X \sim \text{Geo}(p)$ with the convention of k successes until failure on the $(k+1)$ trial, then compute an interval of values for k so that the probability of first failure will take place after k successes is less than 0.05. Leave your answer in terms of parameter p.