4. The discrete random variable N has four outcomes $n = 1, 2, 3$ or 4
These outcomes have probabilities given by the nth term of a geometric sequence with common ratio $\frac{1}{3}$

Given that $P(N = 1) = p$

(a) find the complete probability distribution of N, giving the probabilities in terms of p

(2)

(b) Show that $p = \frac{27}{40}$

(2)

(c) Find $P(3N - 2 > 5)$

(2)