1. The length of a side of a cube is chosen at random from the uniform distribution on the interval [4, 8]. Calculate i) The probability that the length of the side is between 5 and 6 ii) The probability that the volume of the cube is between 27 and 216. iii) The expected volume of the cube.

2. The density function of the random variable X is given by f(x)=cx2 for x [3,6], otherwise f(x)=0. Calculate i) the value of the constant c ii) P(4¡X¡5) iii) E(X), X and the k-th moment of X. iv) the cumulative distribution function of X, FX(x). v) find the median and upper quartile of this distribution.