IMM - DTU

02405 Probability
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BFN/bfn

Solution for exercise 2.1.1 in Pitman

Question a) We use the formula for the number of combinations - appendix 1, page 512 (the binomial coefficient)

$$\left(\begin{array}{c} 7 \\ 4 \end{array} \right) = \left(\begin{array}{c} 7 \\ 3 \end{array} \right) = \frac{7!}{4!3!} = \frac{7 \cdot 6 \cdot 5}{3 \cdot 2 \cdot 1} = 35$$

Question b) The probability in question is given by the binomial distribution, see eg. page 81.

$$35 \left(\frac{5}{6} \right)^3 \left(\frac{1}{6} \right)^4 = \frac{35 \cdot 125}{6^7} = 0.0156$$