IMM - DTU

02405 Probability
2003-10-13
BFN/bfn

Solution for exercise 3.5.13 in Pitman

Question a) Using the Poisson Scatter Theorem p.230 we get

$$\mu(x) = x^3 \frac{6.023 \cdot 10^{23}}{22.4 \cdot 10^3} = 2.688 \cdot 10^{19} x^3$$

and

$$\sigma(x) = \sqrt{\mu(x)} = 5.1854 \cdot 10^9 x\sqrt{x}$$

Question b)

$$\frac{5.1854 \cdot 10^9 x\sqrt{x}}{2.688 \cdot 10^{19} x^3} \geq 0.01 \rightarrow x \leq 7.1914 \cdot 10^{-6}$$