IMM - DTU

02405 Probability
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BFN/bfn

Solution for exercise 4.4.2 in Pitman

The result is obvious, think of the factor λ as a change of scale, i.e. time measured in hours rather than seconds, length measured in centimeters rather than inches etc. A formal proof is as follows.

Alternative solution using cumulative distribution - section 4.5

$$P(T \leq t) = P\left(\frac{T_1}{\lambda} \leq t\right) = P(T_1 \leq \lambda t)$$

Now inserting in the expression given by (2) page 286 shows that T is Gamma (r, λ) distributed.