

# TMA 4275 Lifetime Analysis 2015

## Homework 2

### Problem 1

(*R&H, Ex. 2.17, slightly modified*). The time to failure,  $T$  (hours), of an item is assumed to have a Weibull distribution with scale parameter  $\theta = 2 \cdot 10^4$  and shape parameter  $\alpha = 1.5$ . Compute MTTF,  $SD(T)$  and  $\text{median}(T)$ .

### Problem 2

(*R&H, Ex. 2.18, slightly modified*). Let  $T \sim Weib(\alpha, \theta)$ . Show that the random variable

$$\left(\frac{T}{\theta}\right)^\alpha$$

is exponentially distributed with failure rate 1.

### Problem 3

Exam 2004V, Problem 3a, 3c (see webpage “Earlier exams”).

### Problem 4

Exam 2005V, Problem 3a, 3b(except last two lines).