

# Advanced Data Analysis HW6

Ao Liu, al3472

1.

(a)

**Answer:**

$$f_T(t) = -\frac{dS(t)}{dt} = (\beta\alpha^\beta t^{\beta-1})e^{-(\alpha t)^\beta}$$

(b)

**Answer:**

$$\lambda(t) = \frac{f(t)}{S(t)} = \beta\alpha^\beta t^{\beta-1}$$

(c)

**Answer:**

$$\begin{aligned}\log(-\log(S(t))) &= \log((\alpha t)^\beta) \\ &= \beta \log(\alpha t) \\ &= \beta \log(\alpha) + \beta \log(t)\end{aligned}$$

(d)

**Answer:**