Lecture 34: Worksheet

Calculus in Statistics

1 Verify that the function $f(x) = \frac{1}{x}$ is a probability density function on $[1, e]$. As usual we assume that f is zero outside the interval $[1, e]$.

2 Find the expectation

$$m = \int_1^e x f(x)\, dx$$

of this distribution function f.

3 Find the variance

$$\int_1^e x^2 f(x)\, dx - m^2$$

of f.