M378K Introduction to Mathematical Statistics
Problem Set #6
Cumulative distribution functions.

Problem 6.1. Source: Sample P exam, Problem #342.
Consider a Poisson distributed random variable X. As usual, let's denote its cumulative distribution function by F_X. You are given that

$$\frac{F_X(2)}{F_X(1)} = 2.6$$

Calculate the expected value of the random variable X.

Problem 6.2. *Consider a random variable Y whose cumulative distribution function is given by*

$$F_Y(y) = \begin{cases} 0, & \text{for } y < 0 \\ y^4, & \text{for } 0 \leq y < 1 \\ 1, & \text{for } 1 \leq y \end{cases}$$

Calculate the expectation of the random variable Y.