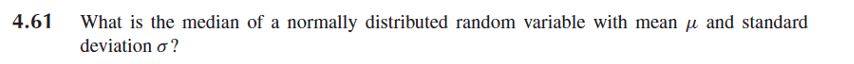
**STA 504 Homework #4**

**Due: Monday, September 30**

**Show your work to earn full credit. You are encouraged to work with your peers on assignments. However, the write-up must be your own.**

**Text

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**Problem 4.**

**Diagram

Description automatically generated with medium confidence**

Based on the above distribution answer the following questions.

1. Show that f(y) is a valid density function.
2. Derive the cumulative distribution function (CDF) of the lifetime variable.
3. Derive the expectation and variance of Y.
4. Find P(Y > 150) using the CDF derived in part 2.
5. Find P(Y > 150 | Y > 100) using CDF.