

Math 421

Quiz 4

You should use the inside front cover of the textbook as a cheat sheet.

Justify all answers with neat and organized work. Clearly indicate your answers.
20 points possible.

1. (4 pts.) If X has a Poisson distribution so that $8P(X = 2) = P(X = 3)$, find $P(X = 15)$.

2. (4 pts.) Flaws in a certain type of drapery material appear on the average of one in 200 square feet. If we assume the Poisson distribution, find the probability of exactly 3 flaws in 150 square feet.

3. (4 pts.) The p.d.f. of X is $f(x) = (3 - x)/2$, $1 \leq x \leq 3$, zero elsewhere.

(a) Sketch the graph of this p.d.f.

(b) Determine the formula for, and sketch the graph of, the cumulative distribution function (c.d.f.) of X .

4. (4 pts.) The p.d.f. of X is $f(x) = (3 - x)/2$, $1 \leq x \leq 3$, zero elsewhere. (Same p.d.f. as previous problem.)

(a) Find μ .

(b) Find σ^2 .

5. (4 pts.) The p.d.f. of X is $f(x) = (3 - x)/2$, $1 \leq x \leq 3$, zero elsewhere. (Same p.d.f. as previous two problems.) Find each of these.

(a) $m = \pi_{0.50}$

(b) $\pi_{0.90}$