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Homework 5

Problem 1

1. E[N|T=t] =
2. E[N] =

Problem 2

1. f(T) = 1/b for a<T<a+b

Problem 3

Problem 4

1. P(a) = for 0<a<n

E[A] = np

Var(A) = np(1-p)

1. E[D] = np-n(1-p) = 2np-2
2. E[A|first 2 in A] = 2 + np = 2p

Var(A|first 2 in A) = (n-2)p(1-p)

Problem 5

Problem 6

If interval is broken at point n

L(n) contains point x and is length of subinterval

L(n) = n for n>x

1-n for n<x

E[L(n)] =

P(1-p) is maxed at p=1/2 which is ¾

Problem 7

E[N|T=t] =

Problem 8

E[Xi] = 1/m

X =

Problem 9

1. E[X+Y] = 0

2p(1,1)-2p(-1,-1) = 0

1. E[X+Y] = 0

2p(1,-1) – 2p(-1,1) = 0

1. Var(X) = E[X\*X] = 1
2. Var(Y) = E[Y\*Y] = 1

Problem 10

* 1. E[y] = 120

E[] = 300 – 120 = 180 min

* 1. E[y+] = 300 min

2pm