p.100 #1

Let X be # of beams among the 3 selected beams that failed by shear.

Outcomes

X	Actual Outcome
0	FFF
1	SFF FSF FFS
2	SSF SFS FSS
3	SSS

p.4 #6 Let X be # of cars observed (including the one that turns left)

X can be any positive integer $\{1, 2, 3, \ldots, \infty\}$

A, A, A, R, L $\rightarrow X = 5$ R, L $\rightarrow X = 2$ A, A, R, L $\rightarrow X = 4$

R, R, A, L $\rightarrow X = 4$ L $\rightarrow X = 1$ A, A, L $\rightarrow X = 3$

p.101 #7

a. $X = \{0, 1, \ldots, 12\}$ Discrete

b. $Y = \{0, 1, \ldots, n\}$ Discrete

c. $U = \{1, 2, \ldots n\}$ Discrete

d. $X \geq 0$ Continuous realistically $0 \leq X \leq 100$ (%)

e. $Z = \{0, .01, .02 \ldots \text{max}\}$ Discrete

f. $Y \geq 0$ Continuous

g. $X \geq 0$ continuous

h. $X = \{0, 1, 2 \ldots n\}$ Discrete

p.101 #10 W = # of pumps in use @ both six + four pump stations

$S1 = \{0, 1, 2, 3, 4, 5, 6\}$

$S2 = \{0, 1, 2, 3, 4\}$

a. $T = \{0, 1, 2, \ldots 10\}$

b. $X = \{-4, -3, -2, \ldots, 6\}$

c. $U = \{0, 1, 2 \ldots 6\}$

d. $Z = \{0, 1, 2\}$

p. 109 #12 Y is # of ticketed passengers that show up for an overbooked flight

a. $P(Y \le 50) = F(50) = \underline{0.83}$ ANS

b. $P(Y > 50) = 1 - F(50) = \underline{0.17}$ ANS

c. $P(Y \le 49) = F(49) = \underline{0.66}$ ANS

$P(Y \le 47) = F(47) = \underline{0.27}$ ANS

---

p. 109 #13 X is # of lines in use at a specified time

a. $P(X \le 3) = F(3) = \underline{0.7}$ ANS

b. $P(X < 3) = P(X \le 2) = F(2) = \underline{0.45}$ ANS

c. $P(X \ge 3) = 1 - F(2) = \underline{0.55}$ ANS

d. $P(2 \le X \le 5) = F(5) - F(1) = \underline{0.71}$ ANS

e. $P($2, 3, or 4 phones not in use$) = P($2, 3, or 4 phones in use$) = \underline{0.65}$ ANS

f. $P(X \le 2) = \underline{0.45}$ ANS

---

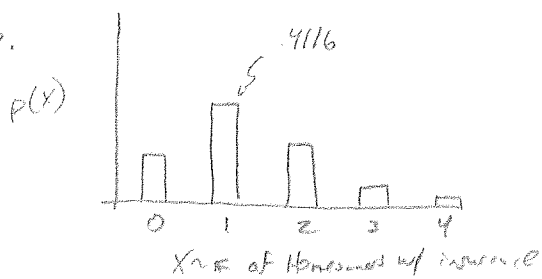
p. 110 #16 X ~ # of homeowners out of 4 that have insurance

S ~ yes insurance
F ~ no insurance

a.

X	actual outcome(s)	$p(x)$	
0	FFFF	$(.7)(.7)(.7)(.7)$	$= 0.2401$
1	SFFF, FSFF, FFSF, FFFS	$4(.3)(.7)^3$	$= 0.4116$
2	SSFF, SFSF, SFFS, FSSF, FFSS, FSFS	$6(.3)^2(.7)^2$	$= 0.2646$
3	SSSF, SFSS, SSFS, FSSS	$4(.3)^3(.7)$	$= 0.0756$
4	SSSS	$(.3)^4$	$= \underline{0.0081}$
			1

b.



c. Most likely value → $\underline{1}$ ANS

d. $P(X \ge 2) = p(2) + p(3) + p(4) = \underline{0.3483}$ ANS

24

X = # mos between surgery payments

a.

x	$p(x)$
0	0
1	0.3
3	0.1
4	0.05
6	0.15
12	0.4

b. $P(3 \le x \le 6) = F(6) - F(1) = .6 - .3 = \underline{0.3}$ Ans

$P(4 \le X) = P(X \ge 4) = 1 - P(X \le 3) = 1 - F(3) = \underline{0.6}$ Ans