(Question numbers are according to questions in text book Edition 6)

Chapter 2, 108.

a. P(all full) = P(A ∩ B ∩ C) = (.6)(.5)(.4) = .12

P(at least one isn't full) = 1 – P(all full) = 1 - .12 = .88

b. P(only NY is full) = P(A ∩ B′ ∩ C′) = P(A)P(B′)P(C′) = .18

Similarly, P(only Atlanta is full) = .12 and P(only LA is full) = .08

So P(exactly one full) = .18 + .12 + .08 = .38

Chapter 3: Questions 6, 12, 14, 18, 20, 22, 26

6.

Possible X values are1, 2, 3, 4, … (all positive integers)

Outcome:	RL	AL	RAARL	RRRRL	AARRL
X:	2	2	5	5	5

12.

a. In order for the flight to accommodate all the ticketed passengers who show up, no more than 50 can show up. We need y ≤ 50.
P(y ≤ 50) = .05 + .10 + .12 + .14 + .25 + .17 = .83

b. Using the information in a. above, P(y > 50) = 1 - P(y ≤ 50) = 1 - .83 = .17

c. For you to get on the flight, at most 49 of the ticketed passengers must show up. P(y ≤ 49) = .05 + .10 + .12 + .14 + .25 = .66. For the 3rd person on the standby list, at most 47 of the ticketed passengers must show up. P(y ≤ 44) = .05 + .10 + .12 = .27

14.

a. $\sum_{y=1}^{5} p(y)$ = K[1 + 2 + 3 + 4 + 5] = 15K = 1 $\Rightarrow K = \frac{1}{15}$

b (Y ≤ 3) = p(1) + p(2) + p(3) = $\frac{6}{15} = .4$

c. P(2 ≤Y≤ 4) = p(2) + p(3) + p(4) = $\frac{9}{15} = .6$

d. $\sum_{y=1}^{5}\left(\frac{y^2}{50}\right) = \frac{1}{50}[1+4+9+16+25] = \frac{55}{50} \neq 1$; No

18.

a. p(1) = P(M = 1) = P[(1,1)] = $\frac{1}{36}$

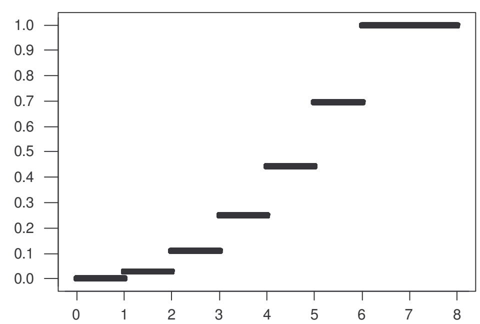
p(2) = P(M = 2) = P[(1,2) or (2,1) or (2,2)] = $\frac{3}{36}$

p(3) = P(M = 3) = P[(1,3) or (2,3) or (3,1) or (3,2) or (3,3)] = $\frac{5}{36}$

Similarly, p(4) = $\frac{7}{36}$, p(5) = $\frac{9}{36}$, and p(6) = $\frac{11}{36}$

b. F(m) = 0 for m < 1, $\frac{1}{36}$ for 1 ≤ m < 2,

$$F(m) = \begin{cases} 0 & m < 1 \\ \frac{1}{36} & 1 \le m < 2 \\ \frac{4}{36} & 2 \le m < 3 \\ \frac{9}{36} & 3 \le m < 4 \\ \frac{16}{36} & 4 \le m < 5 \\ \frac{25}{36} & 5 \le m < 6 \\ 1 & m \ge 6 \end{cases}$$



20.

P(0) = P(Y = 0) = P(both arrive on Wed.) = (.3)(.3) = .09

P(1) = P(Y = 1) = P[(W,Th)or(Th,W)or(Th,Th)]

= (.3)(.4) + (.4)(.3) + (.4)(.4) = .40

P(2) = P(Y = 2) = P[(W,F)or(Th,F)or(F,W) or (F,Th) or (F,F)] = .32

P(3) = 1 – [.09 + .40 + .32] = .19

22.

a. P(X = 2) = .39 - .19 = .20
b. P(X > 3) = 1 - .67 = .33
c. P(2 ≤ X ≤ 5) = .97 - .19 = .78
d. P(2 < X < 5) = .92 - .39 = .53

26.

a) The sample space consists of all possible permutations of the four numbers 1, 2, 3, 4:

outcome	**y value**	**outcome**	**y value**	**outcome**	**y value**
1234	4	2314	1	3412	0
1243	2	2341	0	3421	0
1324	2	2413	0	4132	1
1342	1	2431	1	4123	0
1423	1	3124	1	4213	1
1432	2	3142	0	4231	2
2134	2	3214	2	4312	0
2143	0	3241	1	4321	0

b) Thus p(0) = P(Y = 0) = $\frac{9}{24}$, p(1) = P(Y = 1) = $\frac{8}{24}$, p(2) = P(Y = 2) = $\frac{6}{24}$,
p(3) = P(Y = 3) = 0, p(3) = P(Y = 3) = $\frac{1}{24}$.