5.2 Probability rules - Page 315, #49,51,53,55

49. a. P(Female) = 275/595 = .462

b. P(east b/f reg) = 300/595 = .504

c. P(F and b/f) = 110/595 = .185

d. P(F OR b/f) =

275/595 + 300/595 - 110/595

= 465/595 = .782

(51) B: BALL LANDS IN BUACK E: BALL LANDS IN EVEN					
	a.	EVEN	HOTY	TOTAL	
	BIACK	10	8	18	
	N6T ALK	10	10	20	
)	TOTAL	20	13	38	

b. P(B) = 18/38

P(E) = 20/38

c. "B and E" probability that in a single drop, the ball will land in a black, even slot.

P(B and E) = 10/38

d. why is P(B or E) not equal to P(B) + P(E)?

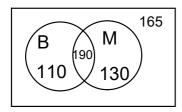
because using that would double count.

 $P(B \text{ or } E) = P(B) + P(E) - P(B \cap E)$ 

= 18/38 + 20/38 - 10/38

= 28/38

53.



- b.  $P(B \cup M) = 430/595 = .723$
- c. P(B<sup>c</sup> ∩ M<sup>c</sup>) = 165/595=.277
  probability that we select a female who is not a breakfast eater.

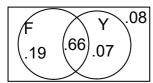
55. a. 85% facebook 73% youtube 66% do both

P(F) = posts on Facebook

P(Y) = posts on youtube

	posts on youtube	Doesn't post on Youtube	
posts on Facebook	.66	9	- 85
Doesn't post on Facebook	.07	,08	.15
	,73	,27	1.0

b. Venn



c. P(FuY)

d.  $P(F \cup Y) = .85 + .73 - .66 = .92$