HW 5.2 Part B page 298 33-36 (MC) pages 310-311 prob 49, 51, 53, 55

(33) D

(34) 82 73 47 14 90 20 46 79 75 11 **C**

M M M **H** M **H** **H** M M **H** 4 Hits

(35) 12/25 **C**

(36) E

(49) a) The individuals are the students in the urban school
The variables are: gender, whether or not they regularly eat breakfast

b) $P(\text{female}) = 275/595 = 55/119 \approx .46$
$P(\text{eats breakfast reg.}) = 300/595 = 60/119 \approx .50$
$P(\text{female who eats breakfast reg}) = 110/595 = 22/119 \approx .18$
$P(\text{female or someone who eats breakfast reg}) = \frac{275}{595} + \frac{300}{595} - \frac{110}{595} =$

$$\frac{465}{595} = \frac{93}{119} \approx .78$$

(51) a)

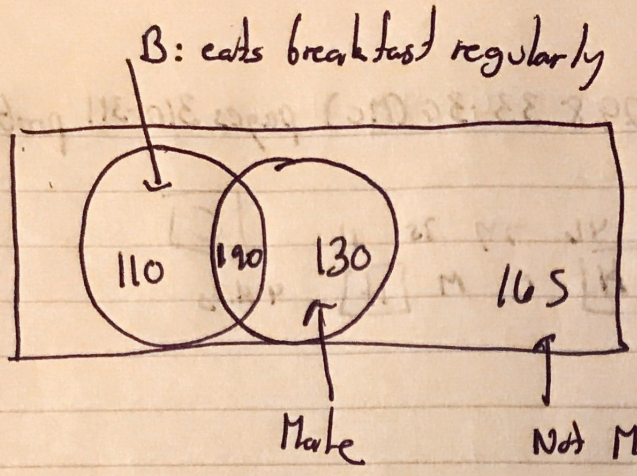
	Black Slot	Not Black Slot	Total
Even #	10	10	20
Not Even (Odd)	8	10	18
Total	18	20	38

b) $P(B) = 18/38 = 9/19$
$P(E) = 20/38 = 10/19$

c) "B and E" mean the ball lands on a black slot with an even #
$P(B \text{ and } E) = 10/38 = 5/19$

d) $P(B \text{ or } E) \neq P(B) + P(E)$ b/c they are not mutually exclusive events, and we would count $P(B \text{ and } E)$ twice.
$P(B \text{ or } E) = 18/38 + 20/38 - 10/38 = 28/38 = 14/19$

(53) A)



B) $P(B \cup M) = P(B) + P(M) - P(B \cap M)$

$$\frac{300}{595} + \frac{320}{595} - \frac{190}{595} = \frac{430}{595} = \frac{86}{119}$$

~~X~~ or add $\frac{110 + 190 + 130}{595} = \frac{430}{595} = \frac{86}{119}$ ~~X~~

The probability of being male or someone who eats breakfast regularly, or both is $430/595$ ($86/119$).

c) $P(B^c \cap M^c) = \frac{165}{595} = \frac{33}{119}$

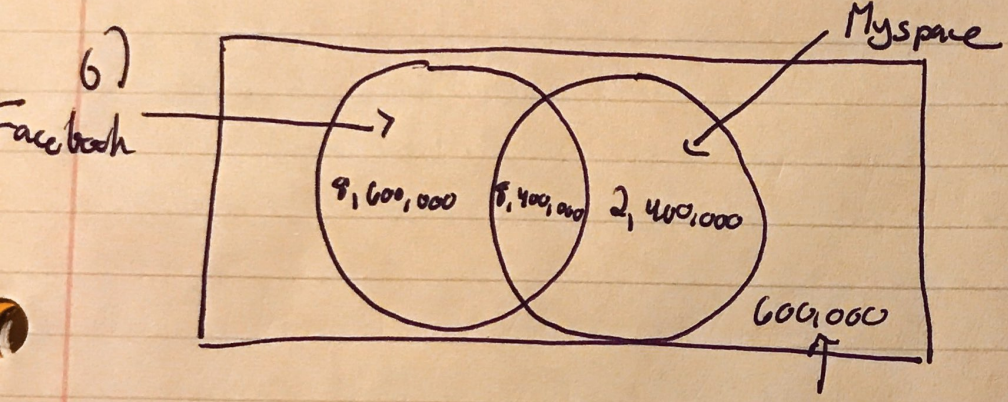
The probability of not being a male and someone who doesn't eat breakfast is $165/595$ ($33/119$).

HW 5.2 Part B problems 33-36, 49, 51, 53, 55

(55 a)

	Face Book	No Facebook	Total
MySpace	42% 8,400,000	12% 2,400,000	54% 10,800,000
No MySpace	43% 8,600,000	3% 600,000	46% 9,200,000
Total	85% 17,000,000	15% 3,000,000	(100%) 20,000,000

6)



c) P(Facebook or Myspace) = P(Facebook ∪ Myspace)

d) One method is to add all 3 parts of the Venn diagram for the Facebook only students, the students with both, and the myspace only students.

$$\frac{8,600,000 + 8,400,000 + 2,400,000}{20,000,000} = \frac{19,400,000}{20,000,000} = \frac{97}{100} = .97$$

OR

P(FB) + P(MySpace) − P(Facebook and Myspace)

$$\frac{17,000,000}{20,000,000} + \frac{10,800,000}{20,000,000} - \frac{8,400,000}{20,000,000} = \frac{19,400,000}{20,000,000} = \frac{97}{100} = .97$$