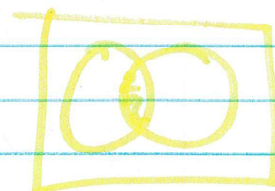


# Chapter 3 Quiz pg. 184 1-7

1.  $9 \cdot 10 \cdot 10 \cdot 10 \cdot 10 \cdot 5$  0, 2, 4, 6, 8, ← Even  
1, 3, 5, 7, 9

450000 ways

	Male	Female	Total
2. Associate	361	581	942
Bach	734	982	1716
Master	292	439	731
Doctoral	80	84	164
total	1467	2086	3553



a)  $P(\text{bach}) = \frac{1716}{3553} = .483$       b)  $P(\text{Bach} | \text{female}) = \frac{982}{2086} = \boxed{.471}$

c)  $P(\text{Bach} | \text{Female}) = \frac{982}{2086} = \boxed{.471}$   
↑ not female means male

d)  $P(\text{Associate or bach}) = P(\text{Assoc}) + P(\text{bach})$   
 $\frac{942}{3553} + \frac{1716}{3553} = \frac{2658}{3553} = .748$

e)  $P(\text{Dr} | \text{female}) = \frac{\text{Dr}}{\text{female}} = \frac{84}{2086} = \boxed{0.040}$

f)  $P(\text{master or Male}) = P(\text{Master}) + P(\text{Male}) - P(\text{Master; Male})$   
 $\frac{731}{3553} + \frac{1467}{3553} - \frac{292}{3553} = \frac{1906}{3553} = \boxed{0.536}$

g)  $P(\text{assoc and Male}) = P(\text{Assoc}) \cdot P(\text{Male} | \text{Associate})$   
 $\frac{942}{3553} \cdot \frac{361}{942} = \frac{361}{3553} = \boxed{.102}$

h)  $P(\text{female} | \text{bach}) = \frac{\text{female bach}}{\text{bach}} = \frac{982}{1716}$

3. anything less than .05 is Unusual

So the probability Pick a person who is a doctor given she is a female is .040 less than .05  
So Unusual.

4. Event A: Golfers scoring the best 1 round in a four-round tournament  
Event B = Losing the golf tournament

Not Mutually exclusive because you can win a round and still lose the whole tournament.

5.  ${}_{30}P_4 = 657,720$  ways

6. Shipment of 250 Netbooks 3 defective  
Prob 3 Unit

a) none defective =  ${}_{247}C_3 = 2,481,115$

b) all defective =  ${}_3C_3 = 1$  only one way  
(none good)

c) at least one good =  $P(\text{Choose 3}) - P(\text{all defective})$

$${}_{250}C_3 - {}_3C_3 =$$

$$2573000 - 1 = 2572999$$

7) a)  $P(\text{no defective unit}) = \frac{{}_{247}C_3}{{}_{250}C_3} = \frac{2,481,115}{2,573,000} = .964$

b)  $P(\text{all defective}) = \frac{{}_3C_3}{{}_{250}C_3} = \frac{1}{2,573,000} = .000000389$



# Chapter 3 test pg. 185 1-7

1 1 2 10 10 10 10 10

$$1. \frac{{}_5C_3}{{}_{30}C_3} = \frac{10}{4060} = .00246$$

$$2. a) P(\text{guessing on first try}) = .000000148$$

$$26 \cdot 26 \cdot 10 \cdot 10 \cdot 10 \cdot 10 = 6,760,000 \text{ so } \frac{1}{6,760,000} = .000000148$$

$$b) P(\text{Not guessing}) = 1 - P(\text{guessing})$$

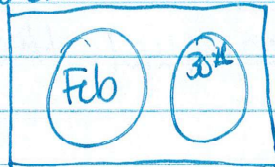
$$1 - .000000148 = .99999985$$

$$c) \text{ you know person's First name}$$

$$1 \cdot 26 \cdot 10 \cdot 10 \cdot 10 \cdot 5 = 130,000 = \frac{1}{130,000}$$

$$P(\text{guessing}) = .00000769$$

3. Event A = Randomly Selecting Student born on 30<sup>th</sup>  
Event B = Randomly Selecting Student born in Feb



Mutually exclusive because you can't have b-day of Feb 30<sup>th</sup>.

	Colds	Flu	neither	total
4. Smoker	526	153	4980	5659
Non-smoker	1494	430	20,712	22636
total	2020	583	25,692	28,295

$$a) P(\text{Cold}) = \frac{2020}{28295} = .0714 \quad b) P(\text{cold or flu}) = \frac{2020}{28295} + \frac{583}{28295} = \frac{2603}{28295} = .0919$$

$$c) P(\text{neither} | \text{Smoker}) = \frac{4980}{5659} = .880 \quad d) P(\text{neither} | \text{nonsmoker}) = \frac{20712}{22636} = .915$$

$$e) P(\text{Smoker} | \text{Flu}) = \frac{153}{583} = .262 \quad f) P(\text{flu or non}) = \frac{583}{28295} + \frac{22636}{28295} - \frac{430}{28295} = .805$$



5. The events that are Unusual are  
 $P(\text{Cold and Smoker}) = .0186$  because it is less than .05.

6. Event A = A person had a Cold  
Event B = person is a Smoker

If 2 Events are Independent then

$$P(B|A) = P(B) \text{ OR } P(A|B) = P(A)$$

This means prob of B  
given A is the same as  
the prob of B

This means prob of A given  
B is the same as the prob  
of A.

You can  
do it  
either  
way

So  $P(B|A) = \frac{526}{2020} = .260 \neq P(B) = \frac{5659}{28,295} = .20$

OR  $\rightarrow P(A|B) = \frac{526}{5659} = .093 \neq P(A) = \frac{2020}{28,295} = .0714$

Because neither of these are equal the 2 Events  
are dependent.

7. 16 kids

a)  ${}_{16}P_3 = 3360$

b) Unit B = 3 Unit C = 5 Units A = 4 Units D = 4  
Distinguishable  $\frac{16!}{3! \cdot 5! \cdot 4! \cdot 4!} = 50,450,400$

There are 50,450,400 ways 16 Students with each  
Unit can be arranged.