HW4
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These are the solutions to at least 60% of the problems for chapter 4.

Problem 4.6

This means that the probability of a serious event is 1/100000 which is th

Problem 4.21

Blood Type	A	B	AB	O
US Probability	0.4	0.11	0.04	0.45

part a The probabilty of blood type O blood in the United states is 1-(0.4+0.11+(

part b The probability that Maria can safely receive randomly chosen blood safe

Problem 4.22

Blood Type	A	B	AB	O
US Probability	0.27	0.26	0.12	0.35

The probability that a randomly chosen American and Chinese both have

0.16

The probability that both have the same blood type is (0.4*0.27+0.26*0.1

0.3

Problem 4.24

part a The probability that should replace "?" is 1-(0.23+0.07+0.11) which is equ

0.59

part b The probability that a Canadian's mother tongue is not English is 1-0.59 \

0.41

Problem 4.25

part a The probability that a randomly chosen young adult has some education

part b The probability that a randomly chosen young adult has at least a high sc

0.88

Problem 4.28

	Hispanic	Not Hispanic
Asian	0.000	0.036
Black	0.003	0.121
White	0.060	0.691
Other	0.062	0.027
	0.13	0.88

part a Since the sum of probabilities of Hispanic and Not Hispanic is 1 there is a

part b The P(A) is 0.13 which is the sum of Asian, Black, White, and Other for H

part c Hispanic and Not Hispanic groups make up everyone since B makes up l

0.13

part d Given the probability of B: P(B) is the sum of 0.036 + 0.121 + 0.207 whicl
The probability of a non-Hispanic white is 0.691 .
1-(P(A)+(P(B)-P(X))
1.57

0.69	0.88
0.69	0.16
0.18	1.07

Problem 4.30 Yes, events A and B are independent since being White does not influen

Problem 4.34 The probability that at least one of them will have type O blood is 0.07*1(

7 x		7 x	
100	10	100	1

100x=7*10
X=(7*10)/100
0.7

100x=7
X=7/100
0.07

10 x	
100	7

7*10=100*x
X=(7*10)/100
0.7

0.7

Problem 4.36

part a The probability that none of the calls reaches a live person is (1-0.2)^5 wl

0.33

part b The probability that none of the calls reaches a person in New York is (1-

0.66

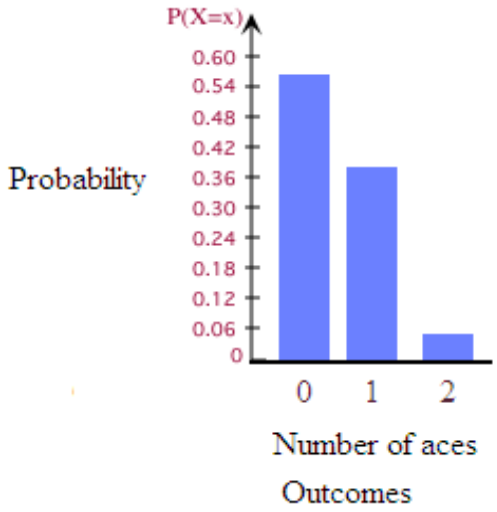
Problem 4.50

part a Since 0.559 + 0.382 + 0.059 = 1 the assignment of probabilities for this d

part b

	1		
Number of ace	0	1	2
Probability	0.559	0.382	0.059

Probability	Number of aces
0.559	0
0.382	1
0.059	2



part c The probability that a hand contains at least one ace is 0.382 .
One way to calculate this probability is 1-(0.559+0.059) .
Another way to calculate this probability is 0.382^1 which means the chai

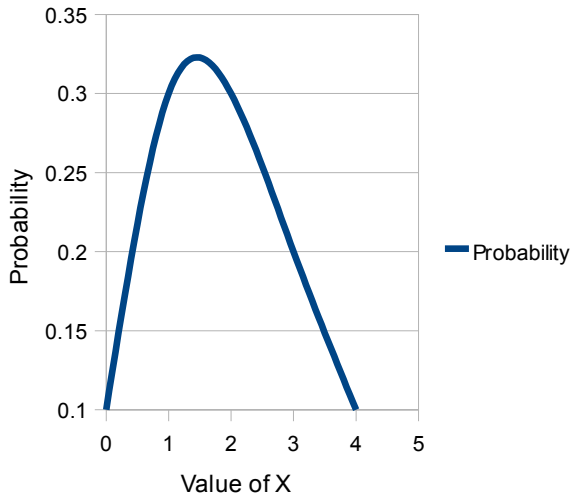
Probability	Number of aces	Y	N
0.559	0	N	Y
0.382	1	Y	Y
0.059	2	N	N

0.382

Problem 4.51

Value of X	0	1	2
Probability	0.1	0.3	0.3

part a



part b P(X≥1)

The probability of this event is P(1)+P(2)+P(3)+P(4).

Thus, P(X≥1) = 0.9 .

0.9

part c The probability of X≤2 is just the probability of 0.1 for the zeroth value of .

The probability of X≤2 is 0.7 .

The probability of X<2 is P(0)+P(1) = 0.4 .

Problem 4.63

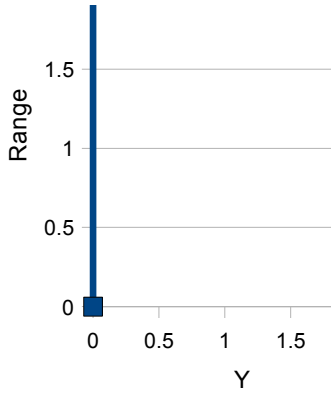
part a

Range	Y
0	0
2	0
2	0.5



Sheet1

2	1
2	1.5
2	2
0	2
0	2.5



The height between the 0 and 2 is 2 .

part b The area under the curve where Y is ≤ 1.5 is 1.5*2 which is eqaul to 3.0 .

part c The area is (1.7-0.6)*2 which is 2.2 . 2.2

part d The area is (2.0 – 0.9)*2 which is 2.2. . 2.2

Problem 4.83

part a In this case I assume they are dependant.
In this case I assume they are dependant since the score is dependant o

part b In this case I assume they are independant.
I assume independence in this case since dice do not have memory, so e

Problem 4.84

	Mean	Standard Deviation
centimeters	176.8	7.2
inches	69.61	2.83

176.8cm

Problem 4.103

part a

	Men	Women	
4 yr institution	0.2684	0.3416	Males make up
2 yr institution	0.1599	0.2301	Males make up

61% attend 4 y

0.61
0.27

part b The probability that a woman chosen at random attends a 4 year institutio

0.5934
0.98
???????

4.35
0.35

Problem 4.106

P(A)	P(B)	P(A and B)	P(A or B)
0.138	0.261	0.082	0.317

The probability that the household selected is either prosperous or educa

Problem 4.110 The questions is asking in mathematical terms P($1,000,000.00|100,000

P($1,000,000.00|100,000.00)

312226042 0.000769
12757005
240128 0.04 0.000769

Problem 4.116

	Bachelor's	Master's	Professional	Doctorate
Female	993	402	51	26
Male	661	260	44	26

part a

	Bachelor's	Master's	Professional	Doctorate

Female	0.4032	0.1632	0.0207	0.0106
Male	0.2684	0.1056	0.0179	0.0106

part b P(Woman)
0.6

The probability of choosing a woman is 0.6 .

part c Probability that a person chosen got a professional degree is 0.04 .
0.04

Probability that a person chose is a women is 0.6, so P(woman|person w
Which is (probability of both woman and professional degree)/(probability
0.0345

part d The events “choose a woman” and “choose a professional degree recipie
since “choosing a professional degree recipient” has a part that contains

Problem 4.118

Highest Educa	Total Populati	In labor force	Employed	Unemployment
Did not finish h	28021	12623	11552	3846
High school bu	59844	38210	36249	-14615
Some college,	46777	33928	32429	-19580
College gradu	51568	40414	39250	-28096

The unemployment rate becomes closer and closer to zero as the educa

If being employed and level of education were not related they would not

ıe proportion of a serious event occurring from data of many trials.

).04) which is 0.45 .

ely is 0.11+0.45 which is equal to 0.56 .

: type O blood is 0.35*0.45 which is 0.16 .

1+0.12*0.04+0.35*0.45) which is 0.3 .

ıal to 0.59 .

which is 0.41 .

beyond high school is at least 0.31 .

chool education is 0.88 .

a legitimate assignment of probabilities.

Hispanic people.

Hispanic for Asian, Black, White, and Other than not B in other words Bs complement must be everyc

h I shall call P(X) plus 0.691. Then the probability that a person is a non-Hispanic White is 1-(P(A)+(P

ce whether a person is Hispanic or not.

) which is 0.7 .

hich is equal to 0.33 .

·0.08)^5 which is equal to 0.66 .

liscrete distribution is ok.

Probability	Number of aces
0.559	0
0.382	1
0.059	2

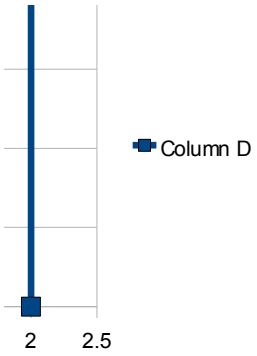
nce I have of getting this ace in one hand.

0.38

3	4
0.2	0.1

X plus the probability of 0.3 for the first value of X plus the probability of 0.3 for the second value of X.





n the possible subset of X in the set Y.

each succesive roll of the dice does not influence the next roll of the dice.

1in
2.54cm

r institions and the rest attend 2 yr institutions.
› 44% of the students in 4 year institutions.
› 41% of the students in 2 year institutions.

0.39

10/31/99

0.39

on is (0.3416)/(0.2684+0.3416) which is 0.5600 .

0.5600

0.57

0.56

0.5975

0.5975

4.35

0.57

ated is P(A)+P(B)-P(A and B) which is 0.138+0.261 – (0.082) which equals 0.317 .

.00) which is equal to 0.000769 .

sum all

2463

sum all

1

ho got a professional degree is) = 0.0345 .
/ of choosing a woman).

ent" are not independent;
s males and not just females.

Uemployment Rate
3.28
-2.61
-1.73
-1.44

tion level increases.

be directly proportionate to one another.

›ne else, so to find the probability of Bs complement I would take 1-(0.036 + 0.121 + 0.691 + 0.027) w

(B)-P(X))

hich is eqaul to 0.13 .

9 mean

1.5

sd

5.05 0.27

o 0.35

0.096119

http://www.sciencenews.org/

0.88

2.25

0.49 212

2340

-2.5

0.9938

250

-0.71

72.86

72.22

8.96

8.25

'

1	2	3	4	5	sum
0.35	0.12	0.04	0.02	0.01	0.53563

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0
0.69
0.00321502