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Homework 1 Probability

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I pledge my honor that I have abided by the Stevens Honor System.

------James Zhang

1.1

After playing the game for a long time, he would lose all his money. Because the probability of the two dice sum up to 7 is much higher than the two dice sum up to 2, much higher than 2 times. The probability of sum up to 2 is only 1/36, sum to 7 is 1/6. So, he would lose all his money.

1.2

a) P(A and B) / P(B) = 0.08 / 0.3 = 0.267

b) given Susan is not at the Bank P(A) – P(A and B) = 0.2- 0.08 = 0.12

1- P(B) = 1-0.3 = 0.7

0.12 / 0.7 = 0.1714

c) given at least one of them is there, P(A and B), given P(A or B) = 0.08 / 0.42 = 0.19

1.3

0.8 + 0.9 – 0.91 = 0.79

a) when only Harold gets B: 0.8-0.79 = 0.01

b) 0.9-0.79 = 0.11

c) 1-0.91 = 0.09

1.4

Not independent, because 0.08 does not equal to 0.2*0.3 which is 0.06

1.5

a) not independent

b) yes, they are independent.

1.6

a) 60%*30% + 30%*20% + 10%*10% = 25%

b) (60%*30%)/25% = 72%

1.7

a) did not survive/total = 1490/2201 = 67.7%

b) first/total = 325/2201 = 14.77%

c) number/total = 344/2201 = 15.6%

d) (part c)/ (P(survive)) = (.1563/.323) = 48.39%

e) They are not independent because the Probability don't match with each other, they are not the same

f) (first class female survivors)/(survived) = 141/711 = 19.8%

g) (part c)/ (P(survive)) = (.1563/.323) = 48.39%

g is the same as part d

h) (first class survivors)/(survivors) = 203/711 = 28.55%

i) NOT independent because the probability is not the same as we did all the calculation above.

R code was not required for this homework problem 1.7

But in case we need to submit please let me know and I will submit it.