**CS-513 – Home work 1 – 10429101**

**1.1**)

a) Probability of Susan at bank = 30%

Together probability = 8%

So, probability – Jerry was there = (8/30) \*100 = 26.67%

b) Probability – Susan not at bank = 100-30 = 70

Probability jerry at bank = 20% -8 (both were not together) = 12

So, probability that Jerry was there = (12/70)\*100 = 17.14%

c) probability – no one was there = 100-(30+20+8) = 42%

(8/42)\*100 = 19.04%

**1.2)**

a) Only Harold gets B = 80 – (80+90-91) = 1%

b) Only Sharon gets B = 90 – (80+90-91) = 11%

c) Both won’t get B = 100 – 91 = 9%

**1.3)**

No. The probability of them being together would be different in that case. (i.e. 20\*30/100 = 6%)

**1.4)**

a) total space = 36

1. chances of sum is 6 = 5 (1+5, 2+4, 3+3, 4+2, 5+1) => 5/36

2. chances of second die is 5 = 1/6

3. chances of sum is 6 and second die is 5 = 1/36

From 1. And 2. => (5/36) \* (1/6) ≠ 1/36 => So, they are **dependent**.

b) Total space = 36

1. Chances of sum is 7 = 6/36 = 1/6

2. Chances of first is 5 = 1/6

3. both sum is 7 and first die is 5 = 1/36

From 1. And 2. => (1/6)\*(1/6) = 1/36 => So, they are **independent.**

**1.5)**

1. P (finding oil) = P (oil in TX) + P (oil in AK) + P (oil in NJ)

= (30 \* 60)/100 + (20 \*30)/100 + (10\*10)/100

= 18 + 6 + 1

= 25%

2. P(TX) provided found oil = 18/25 \* 100 = 72%

**1.6) \***Assuming & counting Crew members as part of the passengers.

1. Passenger did not survive = 1490/2201 = 67.69%

2. Passenger was staying in the first class = 325/2201 = 14.7%

3. given Survived P(First class) = 203/711 = 28.55%

4. survival and First class = 32.3+14.76-37.84 = 9.22%

Survival = 32.3 and First Class = 14.76 => 4.76%

9.22 ≠ 4.76 => **not independent**

5. Given survived P(First class and child) = 6/711 = 0.84%

6. Given survived P(adult) = 654/711 = 91.98%

7. For adult:

Given survived, Adult and first class = 27%

P(adult) \* P(being in first class) = 92 \* 28 /100 = 25.76%

Almost same => **independent**

For child:

Given survived, Child and first class = .8%

P(adult) \* P(being in first class) = 8 \* 28 /100 = 2%

Almost same => **dependent**

**1.7)**

**Turn page**

TOTAL

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 1st | 2nd | 3rd | Crew | Grand Total |
| Adult | 309 | 271 | 671 | 841 | 2092 |
| Child | 16 | 14 | 35 | 44 | 109 |
| Sub Total | 325 | 285 | 706 | 885 | 2201 |

SURVIVED

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 1st | 2nd | 3rd | Crew | Sub Total |
| Adult | 187 | 108 | 164 | 195 | 654 |
| Child | 16 | 10 | 14 | 17 | 57 |
| Sub Total | 203 | 118 | 178 | 212 | 711 |

NOT SURVIVED

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 1st | 2nd | 3rd | Crew | Sub Total |
| Adult | 122 | 163 | 507 | 646 | 1438 |
| Child |  | 4 | 21 | 27 | 52 |
| Sub Total | 122 | 167 | 528 | 673 | 1490 |