Accelerated Geometry
Two Way Table Practice

Name Key
Date _____

1. The following data set provides information about the outcomes of various passengers on the Titanic.

Class

| | First | Second | Third | Crew | Total |
|---|---|---|---|---|---|
| Alive | 203 | 118 | 178 | 212 | 711 |
| Deceased | 122 | 167 | 528 | 673 | 1490 |
| Total | 325 | 285 | 706 | 885 | 2201 |

a) What % of the ship were second class passengers who survived? $\frac{118}{2201} = 5.36\%$

b) What % of survivors were in second class? $\frac{118}{711} = 16.6\%$

c) What % of second class passengers survived? $\frac{118}{285} = 41.4\%$

d) What % were not crew, given that they survived? $\frac{499}{711} = 70.2\%$

e) What % survived, given that they were in third class? $\frac{178}{706} = 25.2\%$

f) Are the events Alive and Second Class Passenger independent? $P(A \text{ and } S) \stackrel{?}{=} P(A) \cdot P(S)$

No, they are not indep. $\frac{118}{2201} \neq \left(\frac{711}{2201}\right)\left(\frac{285}{2201}\right)$

2. Debbie examines what she's been watching on Netflix and Hulu and places them into categories.

| | Netflix | Hulu | TOTAL |
|---|---|---|---|
| Film | 43 | 16 | 59 |
| Comedy | 12 | 5 | 17 |
| Sport | 21 | 3 | 24 |
| TOTAL | 76 | 24 | 100 |

a) Complete the table above.

b) Calculate the probability of choosing a program from Netflix. $76/100 = 76\%$

c) Calculate the probability of choosing a comedy from Hulu. $5/100 = 5\%$

d) Calculate the probability of choosing a program from Netflix given that it's a film. $\frac{43}{59} = 72.9\%$

e) Calculate the probability of choosing a comedy given that you are only watching Hulu. $\frac{5}{24} = 20.8\%$

f) Are the events Netflix and Sport independent?

$P(N \text{ and } S) \stackrel{?}{=} P(N) \cdot P(S)$

$\frac{21}{100} \neq \left(\frac{76}{100}\right)\left(\frac{24}{100}\right)$

No, they are not indep.

3. Jamie investigated hair and eye color.

Let F = someone with fair hair  Let D = someone with dark hair

Let B = someone with blue eyes  Let O = someone with eyes of some other color

| | Fair hair | Dark hair | TOTAL |
|---|---|---|---|
| Blue eyes | 8 | 5 | 13 |
| Other | 7 | 10 | 17 |
| TOTAL | 15 | 15 | 30 |

a) Complete the table above.

**Calculate the following probabilities:**

b) P(B) $13/30 = 43.3\%$

c) P(F and B) $8/30 = 26.7\%$

d) P(B|D) $5/15 = 33.3\%$

e) P(B') $17/30 = 56.7\%$

f) P(O|F) $7/15 = 46.7\%$

g) P(O or D) $= P(O) + P(D) - P(O \text{ and } D)$
$= \frac{17}{30} + \frac{15}{30} - \frac{10}{30} = \frac{22}{30} = 73.3\%$

h) Are the events Blue eyes and Dark hair independent?

$P(B \text{ and } D) \stackrel{?}{=} P(B) \cdot P(D)$

$\frac{5}{30} = \left(\frac{13}{30}\right)\left(\frac{15}{30}\right)$  No, they are not indep.

4. A travel agent recorded the bookings made on one Saturday.

Let F = France  Let S = Spain  Let G = Germany

Let C = Car/Ferry  Let P = Plane

| | France | Spain | Germany | TOTAL |
|---|---|---|---|---|
| Car/Ferry | 15 | 8 | 5 | 28 |
| Plane | 3 | 6 | 3 | 12 |
| TOTAL | 18 | 14 | 8 | 40 |

a) Complete the table above.

**Calculate the following probabilities:**

b) P(G) $= 8/40 = 20\%$

c) P(F|P) $= 3/12 = 25\%$

d) P(P|F) $3/18 = 16.7\%$

e) P(S') $26/40 = 65\%$

f) P(C and G) $5/40 = 12.5\%$

g) P(S or G) $14/40 + 8/40 = \frac{22}{40} = 55\%$

h) P(C|G) $5/8 = 62.5\%$

i) Are the events Germany and Plane independent?

$P(G \text{ and } P) \stackrel{?}{=} P(G) \cdot P(P)$

$\frac{3}{40} \neq \left(\frac{8}{40}\right)\left(\frac{12}{40}\right)$

No, they are not indep