Probability – Statistics Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Two-Way Tables

|  |  |  |  |
| --- | --- | --- | --- |
|  | Heart | Not a Heart | Total |
| Face Card | 3 | 9 | 12 |
| Not a Face Card | 10 | 30 | 40 |
| Total | 13 | 39 | 52 |

1. P(Not a Face Card)=P(C)=
2. P(Spade, Club, or Diamond)=P(D)=
3. P(C and D)=
4. P(C or D)=

5. Shuffle a deck of playing cards and deal one card. Let event J = getting a jack and event R = getting a

 red card.

1. Construct a two-way table that describes the sample space in terms of events J and R.
2. Find P(J), P(R), and P(J and R).
3. Explain why P(J or R) does not equal P(J) + P(R). Then use the general addition rule to compute P(J or R).

6. The two-way table below describes the members of the U.S. Senate in 2008.

|  |  |  |
| --- | --- | --- |
|  | Male | Female |
| Democrats | 40 | 11 |
| Republicans | 44 | 5 |

1. Who are the individuals? What variables are being measured?
2. If we select a U.S. Senator at random, what’s the probability that we choose

P(D) = P(female D)= P(female)= P(female or D

7. Students in an urban school were curious about how many children regularly eat breakfast. They conducted a survey, asking, “Do you eat breakfast on a regular basis?” All 595 students in the school responded to the survey. The resulting data are shown in the table below.

|  |  |  |  |
| --- | --- | --- | --- |
| Eat breakfast | Male | Female | Total |
| Yes | 190 | 110 | 300 |
| No | 130 | 165 | 295 |
| Total | 320 | 275 | 595 |

1. Who are individuals? What variables are being measured?
2. If we select a student from the school at random, what is the probability that we choose

P(female)= P(eats breakfast)=

P(female who eats breakfast)= P(female or who eats breakfast)=

8. An American roulette wheel has 38 slots with numbers 1 through 36, 0, and 00. On the wheel, 18 of the numbered slots are red, 18 are black, and two – the 0 and 00 - are green. When the wheel is spun, a metal ball is dropped onto the middle of the wheel. If the wheel is balanced, the ball is equally likely to settle in any of the numbered slots. Imagine spinning a fair wheel once. Let event B = ball lands in a black slot and event E = ball lands in an even-numbered slot. Let event G = ball lands in a green slot. (Treat 0 and 00 as even numbers).



1. Make a two-way table that displays the sample space in terms of events B and E.
2. Find P(B) and P(E).
3. Find P(B and E).
4. Find P(B or E).
5. Find P(B and G).
6. Find P(B or G) using the general addition rule.
7. Find P(E and G).
8. Find P(E or G) using the general addition rule.