**Math 160**

**Fall 2017**

**Activity #2 -- Probability**

**Due – October 17**

Work with a partner to complete the table and answer the questions. For these problems use the bag of candy provided.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Yellow | Orange | Red | Green | Total |
| M&Ms |  |  |  |  |  |
| Skittles | 6 | 6 | 5 | 5 | 22 |
| Totals |  |  |  |  |  |

1. What is P(Y)? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Select two candies without replacement. What is P(OO)? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. What is P(G|Skittle)? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. What is P(M&M|R)? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. What is P(M&M OR Skittle)? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. Are the events A = picking a Skittle and B = picking an M&M independent, mutually exclusive, or both? Why?

Now eat (or throw away) 10 candies.

Create a new chart and answer the questions.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Yellow | Orange | Red | Green | Total |
| M&Ms |  |  |  |  |  |
| Skittles |  |  |  |  |  |
| Totals |  |  |  |  |  |

 7. What is P(RY)? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 8. What is P(O|M&M)? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

9. Create a survey for the class that asks two questions: the first question must have qualitative data as the response (three outcomes), and a second question that asks one question about the responder (male/female/non-binary, republican/democrat/independent, right-handed or left-handed, age (give ranges), city where the person lives, etc.) *It is essential that you keep the two data sets together – for example, you need to know how many females like the color blue.*

10. Use the results of the survey to create a quiz for another group. The quiz will have a contingency table you create from your survey results. The quiz will have 5 probability questions from your table. You should have at least one “OR” question, one “AND” question, and one conditional probability question.

11. Bring your quiz on a separate piece of paper on the day the activity is due. Trade quizzes with another group, complete their survey as a pair, and return it to quiz creators. When your survey is returned to you, grade the quiz and indicate at the top the number correct out of the 5 questions you asked.

12. Turn in this document for each student in your pair and the survey you created that is graded (by you).

Rubric for Grading Activities

*Neatness*

*Accuracy*

*Mathematical Insights*

*Followed Directions*

*Analysis of others’ work is correct*