$\qquad$ Date: $\qquad$

## Task - Public Opinions

MCC9-12.S.ID. 5 Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.

A public opinion survey explored the relationship between age and support for increasing the minimum wage. The results are found in the following table.

|  | For | Against | No <br> Opinion | TOTAL |
| :---: | :---: | :---: | :---: | :---: |
| Ages 21- <br> 40 | 25 | 20 | 5 | 50 |
| Ages 41- <br> 60 | 30 | 30 | 15 | 75 |
| Over 60 | 50 | 20 | 5 | 75 |
| TOTAL | 105 | 70 | 25 | 200 |

1. In the 41 to 60 age group, what percentage supports increasing the minimum wage? Explain how you arrived at your percentage. What type of probability is this? Joint, marginal, or conditional?
2. Out of the people that have no opinion, what percentage is over 60 years old?
3. What are the marginal probabilities?

For:
Ages 21 - 40:
Against:
Ages 41-60:
No Opinion:
Over 60:
4. Find the following probabilities:
a. Ages $21-40$ and Against:
b. No Opinion and Over 60:
c. Ages 41-60 and For:

1. Using the table below, construct a table displaying the joint and marginal probabilities.

|  | Dance | Sports | Movies | TOTAL |
| :---: | :---: | :---: | :---: | :---: |
| Women | 16 | 6 | 8 | 30 |
| Men | 2 | 10 | 8 | 20 |
| TOTAL | 18 | 16 | 16 | 50 |


|  | Dance | Sports | Movies | TOTAL |
| :---: | :---: | :---: | :---: | :---: |
| Women |  |  |  |  |
| Men |  |  |  |  |
| TOTAL |  |  |  |  |

2. Based on the above tables, which is more likely to occur: a woman who enjoys sports or a male who enjoys movies?
3. Given that a person likes dancing, what is the probability that the person is a male?
4. If we only look at the men, what is the probability that they enjoy sports?
5. The following table comes from a survey of 100 hikers on the areas of hiking preferred. Complete the table.

Hiking Area Preference

| Gender | The Coastline | Near Lakes \& Streams | On Mountain Peaks | Total |
| :---: | :---: | :---: | :---: | :---: |
| Female | 18 | 16 |  | 45 |
| Male |  |  | 14 | 55 |
| Total |  | 41 |  |  |

6. What percent of people surveyed prefer to hike on mountain peaks?
7. What percent of females surveyed prefer to hike the coastline?
8. What is the probability that a male prefers to hike near lakes and streams?
9. What is the marginal probability of people who prefer to hike the coastline?
10. What percent of people who prefer to hike the coastline are female?
