1. Using the data found on the **OnlyTheBestDiamonds** tab in FinalData.xlsx Excel spreadsheet, complete the following frequency table.

|  |  |  |  |
| --- | --- | --- | --- |
| Clarity | Carat | Frequency | Relative Frequency |
| F | 0.25 |  |  |
| F | 0.50 |  |  |
| F | 0.75 |  |  |
| F | 1.00 |  |  |
| F | 2.00 |  |  |
| IF | 0.25 |  |  |
| IF | 0.50 |  |  |
| IF | 0.75 |  |  |
| IF | 1.00 |  |  |
| IF | 2.00 |  |  |
| WS1 | 0.25 |  |  |
| WS1 | 0.50 |  |  |
| WS1 | 0.75 |  |  |
| WS1 | 1.00 |  |  |
| WS1 | 2.00 |  |  |
| WS2 | 0.25 |  |  |
| WS2 | 0.50 |  |  |
| WS2 | 0.75 |  |  |
| WS2 | 1.00 |  |  |
| WS2 | 2.00 |  |  |
| **TOTAL** | |  | 1.0 |

1. Using the data found on the **OnlyTheBestDiamonds** tab in FinalData.xlsx Excel spreadsheet, find the mean, median, mode and standard deviation for the:
   1. metal value (1 = sterling silver, 2 = gold, 3 = platinum)
   2. size
   3. carat weight
2. Using the data found on the **OnlyTheBestDiamonds** tab in FinalData.xlsx Excel spreadsheet, sort the data found by ring size and create a column chart that would represent the size data. Looking at this chart, what can you tell about the sizes of rings purchased?
3. The real estate investors association assumes that investment in real property is normally distributed. Suppose that an investment in the fund by RealVEst, Inc. has an average annual return of 12.3% with a standard deviation of 27.2%. NOTE: A 0% return is breaking even, while a negative return is a loss and a positive return is a gain.
   1. What percent of the years does this fund lose money?
   2. What percent of the years does this fund make money or break even?
   3. What minimal annual return (as a percentage) would place the annual return in the top 20% of annual returns?
4. Assuming that the weights of the packages handled by USPS follow a nearly normal distribution with mean 10.5 pounds and standard deviation 3.2 pounds. USPS charges an additional fee for packages that weigh in excess of 14 pounds. Determine what percent of customers sending packages incur this fee.
5. Data collected by ACME, INC. shows the following data in terms of sick leave days taken by employees. The following data also appears in **ACMESickLeave** tab in FinalData.xlsx

|  |  |
| --- | --- |
| Sick Leave Days Taken Annually | Percent of Employees |
| 0 | 23% |
| 1 | 20% |
| 2 | 15% |
| 3 | 7% |
| 4 | 4% |
| 5 or more | ??% |

* 1. What is the percentage of employees that take 5 or more sick leave days?
  2. What is the probability that an employee chosen at random doesn't take any sick leave days?
  3. What is the probability that an employee chosen at random takes no more than two sick leave days?
  4. What is the probability that an employee chosen at random takes three or more sick leave days?
  5. If a husband and wife both work for ACME, INC. What is the probability that neither of them take any sick leave?

1. The following table shows the results of the preference conducted with 2000 customers about their salsa preference. The following data also appears in **SalsaPreference** tab in FinalData.xlsx. Replace all of the ??? with the appropriate totals before you answer the following questions.

|  |  |  |  |
| --- | --- | --- | --- |
|  | *Gender* | |  |
| **Salsa Product Preference** | **Male** | **Female** | **Total** |
| *Goldwater's Rio Verde* | 238 | 160 | ??? |
| *Classy Delites Aztec Salsa* | 196 | 65 | ??? |
| *Clint's Texas Salsa Hot* | 133 | 155 | ??? |
| *Chilli's Hot* | 107 | 92 | ??? |
| *Rancheros' Fire Salsa* | 146 | 199 | ??? |
| *None/Other* | 282 | 227 | ??? |
| **Total** | ??? | ??? | 2000 |

* 1. What is the probability that a randomly chosen male prefers Clint’s Texas Salsa Hot?
  2. What is the probability that a randomly chosen female prefers Goldwater’s Rio Verde?
  3. What is the probability that a man and a woman who are dating both have no preference/prefer another salsa than one listed? Note any assumption you make and evaluate whether you think that assumption is reasonable.
  4. What is the probability that a randomly chosen person prefers Goldwater’s Rio Verde or that person is male?