***Directions: Fill in each of the two way tables and answer the questions that go along with each table.***

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **France** | **Spain** | **Germany** | **TOTAL** |
| **Car/Ferry** | 15 | 8 |  | 28 |
| **Plane** |  |  |  |  |
| **TOTAL** | 18 | 14 |  | 40 |

1. Complete the table above.

**One of the bookings is chosen. Find:**

1. P(Spain | Plane) *“probability that a person went to Spain given that they traveled by plane”*
2. P(Car/Ferry | France)
3. P(Germany | Car/Ferry)
4. High School Students were asked about their plans for Spring Break.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Villa** | **Hotel** | **Caravan** | **Tent** | **TOTAL** |
| **Europe** | 3 | 2 |  | 7 | 22 |
| **America** |  | 5 |  |  |  |
| **Japan** | 5 |  |  | 0 | 11 |
| **TOTAL** | 12 | 13 |  | 10 | 50 |

1. Complete the table above.

**One of the children is chosen. Calculate the probability of choosing:**

1. a child who stayed in a hotel.

**A child who went to Europe is chosen. Calculate the probability:**

1. they stayed in a tent.
2. they did NOT stay in a villa.
3. A survey was taken regarding eye color and gender.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Blue** | **Brown** | **Green** | **TOTAL** |
| **Male** | 25 | 39 | 30 | 94 |
| **Female** | 13 | 35 | 28 | 76 |
| **TOTAL** | 38 | 74 | 58 | 170 |

1. P(Blue eyes and Female)
2. P(Blue eyes or Male)
3. P(Green eyes and Female)
4. P(Brown eyes or Male)
5. P(Brown eyes | Male)
6. P(Blue eyes | Female)
7. P(Female | Green eyes)
8. In a survey of 3000 airline travelers, 25% said they had issues with lost or damaged luggage. Find the margin of error and determine the range of percent that have experienced lost or damaged luggage.
9. A random survey in the U.S. asked high school students if they would rather go to math class or English class. The results showed that 65% of students would rather attend math class. If the margin of error was ±6%, approximate the sample size.
10. A group of high school students are conducting a survey on curfew time for minors. Identify any bias in their experiment if they
11. plan to go to freshmen and sophomore study halls to ask their opinions.
12. each plan to ask their adult family members.
13. randomly select 300 people in their town.
14. send out a survey for each student in their high school to answer.
15. Consider the following three data sets A, B, and C.

$$A=\left\{9, 10, 11, 7, 13\right\}$$

$$B=\left\{10, 10, 10, 10, 10\right\}$$

$$C=\left\{1, 1, 10, 19, 19\right\}$$

1. Calculate the mean of each data set. A\_\_\_\_\_\_\_ B\_\_\_\_\_\_\_\_ C\_\_\_\_\_\_\_

1. Calculate the standard deviation of each set. A\_\_\_\_\_\_\_ B\_\_\_\_\_\_\_\_ C\_\_\_\_\_\_\_

1. Which set has the higher standard deviation? \_\_\_\_\_\_\_\_\_\_
2. Is it possible to answer question c without numerical values for the standard deviation?
3. The frequency table of the monthly salaries of 20 people is shown below.

|  |  |
| --- | --- |
| **Salary (in $)** | **Frequency** |
| 3500 | 5 |
| 4000 | 8 |
| 4200 | 5 |
| 4300 | 2 |

1. Calculate the mean of the salaries of the 20 people. \_\_\_\_\_\_\_\_\_\_\_
2. Calculate the median of the salaries of the 20 people. \_\_\_\_\_\_\_\_\_\_\_
3. What is the range of the salaries of the 20 people? \_\_\_\_\_\_\_\_\_\_\_
4. What is the mode of the salaries of the 20 people? \_\_\_\_\_\_\_\_\_\_\_
5. Calculate the standard deviation of the salaries of the 20 people. \_\_\_\_\_\_\_\_\_\_\_
6. How many standard deviations does it take to include all of the data? \_\_\_\_\_\_\_\_\_\_

**For questions 9-12 use the following table for conversions.**

|  |  |  |  |
| --- | --- | --- | --- |
| 1 mile = 1.609 km | 1 ft = .305 meters | $.053 = 1 peso | 1 Euro = $1.06 |

1. A cheetah, one of the fastest animals in the world, can run up to speeds of 75mph. Your friend from the UK does not understand miles per hour. Convert to kilometers per hour.
2. Convert 33 ft/sec to meters/min.
3. In Mexico, fabric for a dress costs 23 pesos per meter. In the U.S. the same material sells for $1.10 per yard. Which country has the better deal?
4. You need to put grass in your backyard. You want grass from Europe because it is higher quality. Grass in Europe sells for 13 Euros per square meter. If your backyard is 210 square feet, how much will it cost you in U.S. dollars to put grass in your backyard?
5. I decide to travel to the moon. If I weigh 130 lbs on earth and 21.45 lbs on the moon, what is my percent change of weight on the moon compared to on earth?
6. A new xbox game that you want is on sale. If you paid $33.71 for the game and it was on sale for 25% off, what was the original price of the game? Round to the nearest cent.
7. 72% of what number is 180?
8. Your job at Anthony’s Pizza and Pasta pays you $9.00/hr. Lately you have been working really hard and your boss is giving you a raise. What is your percent increase if you are now making $11.00/hr?
9. What percent of 42 is 25% of 56?
10. If x percent of 80 is 12, then x percent of what number is 18?
11. If 8 is x percent of 20, what is x percent of 70?
12. A study was done to compare the speed of a car in miles per hour to the gas mileage of a certain type of automobile. The results are as shown:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Speed** | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 |
| **Mileage** | 22.3 | 25.5 | 27.5 | 29.0 | 28.8 | 30.0 | 29.9 | 30.2 | 30.4 | 28.8 | 27.4 | 25.3 | 23.3 |

1. Input the data into your calculator and find a linear, quadratic, cubic, and exponential regression. Write the equation and r/r squared value for each?
2. Which type of function best represents the data? Why?
3. Use the function you chose that best describes the data to approximate the mileage of the car if the car is traveling at 43 miles per hour.
4. Use the function you chose that best describes the data to approximate how fast is the car traveling if the car is getting 28 miles to the gallon?
5. The table below shows a recent graduate’s credit card balance each month after graduation.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Months after Graduation** | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| **Credit Card Bill ($)** | 620.00 | 761.88 | 899.80 | 1039.93 | 1270.63 | 1589.04 | 1851.31 | 2154.92 |

1. Input the data into your calculator and find a linear, quadratic, cubic, and exponential regression. Write the equation and r/r squared value for each?
2. Which type of function best represents the data? Why?
3. Use the function you chose that best describes the data to approximate the amount of the graduate’s credit card bill if he has been graduated for 1 year.