Taylor Larrechea

Dr. Gustafson

MATH 365

January 25, 2018

HW 2

2.2.1

2.2.1.1

|  |  |
| --- | --- |
| **x** | **y** |
| 1 | 1 |
| 1.1 | 1.21 |
| 1.2 | 1.44 |
| 1.3 | 1.69 |
| 1.4 | 1.96 |
| 1.5 | 2.25 |
| 1.6 | 2.56 |
| 1.7 | 2.89 |

From the first graph on the left, we can see that the linear relationship of the points do not intersect the origin. This means that the data set yields an equation that is not proportional but it is linear. When we change the settings around in excel on the graph on the right to intersect the origin, the y-intercept then gets put to zero and we can then say that y is proportional to x and vice versa, but only for the graph on the right above. For the constant of proportionality, when looking at the graph on the right, it is the slope of the line, which in this case is equal to 1.42. Therefore we can conclude that;

* The original graph (the one seen on the left above) does not have a proportionality between the two variables x and y.
* It reasonable to assume that y is proportional to x and vice versa when the equation is set to have the origin as the y-intercept.
* When the origin is set to the y-intercept, the following constant of proportionality is,

2.2.1.2

|  |  |
| --- | --- |
| **x** | **y** |
| 1 | 0.79 |
| 5 | 10.89 |
| 7 | 14.37 |
| 2 | 5.75 |
| 10 | 23.36 |
| 12 | 26.29 |
| 3 | 3.76 |
| 6 | 16.12 |

From the graph on the left above, we can say that y and x are not proportional to one another due to the line not intersecting the origin. Although the graph on the left above is not proportional, it is linear. From the graph on the right above when the line is set to intersect the origin the two variables x and y are proportional to one another but only when the line is set to intersect the origin. From this we can say,

* The original graph (the one seen on the left above) does not have a proportionality between the two variables x and y.
* It reasonable to assume that y is proportional to x and vice versa when the equation is set to have the origin as the y-intercept.
* When the origin is set to the y-intercept, the following constant of proportionality is,

2.2.1.3

|  |  |
| --- | --- |
| x | y |
| 2 | 26 |
| 6 | 20 |
| 9 | 18 |
| 15 | 26 |
| 7 | 6 |
| 25 | 19 |
| 39 | 20 |
| 4 | 13 |

From the above graph on the left in part 3, we cannot say that there is a linear relationship at all amongst these points. From this we can’t as well say that there is a proportionality between the two variables x and y. As seen on the above graph on the right, the intercept is set to zero but this still doesn’t even come close to being proportional or linear. From this we can say

* X and Y are not proportional to one another.
* There is no constant of proportionality for either graph above.

2.2.4

|  |  |
| --- | --- |
| x | 1/y |
| 1 | 0.145985 |
| 1.2 | 0.161031 |
| 1.4 | 0.235849 |
| 1.6 | 0.231481 |
| 1.8 | 0.255102 |
| 2 | 0.314465 |
| 2.2 | 0.341297 |
| 2.4 | 0.337838 |

From the above graph that has the y values inversed being plotted against the x values, there is a linear relationship amongst the points as well as a negligible difference from the origin and the intercept (. This means we can say that these two are proportional to one another. And since this graph is of the inverse of y against x, we can say that y is inversely proportional to x and vice versa. As for the constant of inverse proportionality, that would just be the slope of the line that is in the inverse graph with the intercept through the origin (the one on the left). This value is, . From this we can say,

* X and Y are inversely proportional to one another
* The constant of proportionality is,

2.2.8

This model is only valid for when the temperature T is greater than 85. Otherwise the number of cones would be zero or negative at values of 85 or lower for T. Negative cones are not possible and none will have to be made if the temperature is not above 85 degrees.