Opening a Bakery example output

Below are the required tables and graphs for one ingredient (in the example cookie recipe). The math is given as well.

Granulated Sugar (1 cup weighs 0.440 lbs)

|  |  |  |
| --- | --- | --- |
| Number of cookies | Original units (cups) | Conversion units (pounds) |
| 1 | (0.015) | 0.0066 |
| (one batch amount) 50 | (0.75) | 0.3300 |
| 100 | 1.5 | 0.6600 |
| 500 | 7.5 | 3.3000 |
| 1000 | 15.0 | 6.6000 |
| 10000 | 150.0 | 66.0000 |

To get the amount of the ingredient (sugar in this case) for one cookie, divide the amount for a single batch by the amount of cookies in a batch. You can solve a proportion.

To fill out the rest of the original units column, you can do the multiplication that makes sense to you. The simplest multiplications are to multiply the amount for one cookie with the amount of cookies.

*Amount for 100 cookies = amount for 1 cookie \* 100 = 0.015 \* 100 = 1.5 cup*

You could also multiply the amount for a given amount (say 50) by the number it takes to get that number to the one you want (say 2 to get to 100).

*Amount for 100 cookies = amount for 50 cookies \* 2 = 0.75 \* 2 = 1.5 cup*

Of course, they better be equal. (Which they are.)

Converting to other units (pounds in this case) is just knowing how many pounds a single cup weighs and multiplying the cups column by that conversion number. So for one cookie, you multiply the number of cups (0.015 cup) times the amount a full cup weighs (0.440 lb).

Again, you can multiply this base amount by the number of cookies since this amount is for one cookie.

*Amount for 100 cookies = amount for 1 cookie \* 100 = 0.0066 \* 100 = 0.66 lb*

Or you can multiply the amount for the different number of cookies by how much a cup weighs.

*Amt for 100 cookies = cups in 100 cookies \* weight of cup of ingredient = 1.5 cups \* = 0.66 lb*

Graphing ingredients for a dozen (12) cookies

The simplest way to graph the ingredient for 12 cookies is to make a table, then graph the table using the one-to-one correspondence with the x- and y-coordinates.

|  |  |  |
| --- | --- | --- |
| Number of cookies | Original units (cups) | Conversion units (pounds) |
| 1 | (0.015) | 0.0066 |
| 2 | 0.030 | 0.0132 |
| 3 | 0.045 | 0.0198 |
| 4 | 0.060 | 0.0264 |
| 5 | 0.075 | 0.0330 |
| 6 | 0.090 | 0.0396 |
| 7 | 0.105 | 0.0462 |
| 8 | 0.120 | 0.0528 |
| 9 | 0.135 | 0.0594 |
| 10 | 0.150 | 0.0660 |
| 11 | 0.165 | 0.0726 |
| 12 | 0.180 | 0.0792 |

Do the graph for a dozen cookies (like the one above) by hand. After that, you can make an Excel spreadsheet and create a graph with it. To ensure that you make the graph in Excel correctly, you need to make sure that you know the math necessary to create the tables and graphs.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sugar |  |  |  |  |  |  |  |  |  |  |  |
| Cookies | Cups | Pounds |  | 1 | 0.015 | 0.0066 |  |  |  |  |  |
| 0 | 0.000 | 0.0000 |  |  | | | | | | | |
| 1000 | 15.000 | 6.6000 |  |
| 2000 | 30.000 | 13.2000 |  |
| 3000 | 45.000 | 19.8000 |  |
| 4000 | 60.000 | 26.4000 |  |
| 5000 | 75.000 | 33.0000 |  |
| 6000 | 90.000 | 39.6000 |  |
| 7000 | 105.000 | 46.2000 |  |
| 8000 | 120.000 | 52.8000 |  |
| 9000 | 135.000 | 59.4000 |  |
| 10000 | 150.000 | 66.0000 |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

Notice that the cookies are not in the values in we created first. You want to make the increments of cookies the same size so that your graph is readable (and linear).