Activity 1

**Exploring Average Cost and Marginal Cost**

As the Chief Analyst, you have been given a data set below for a startup firm called the Chocolate Cookies Company. You have been asked to analyze the firm’s average cost and marginal cost.

1. Complete the table below given the equations you have learned.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Workers** | **Quantity** **Output** | **Fixed Cost** | **Variable** **Cost** | **Total** **Cost** | **Average**  **Cost** | **Marginal** **Cost** |
| 0 | 0 | 100 | 0 |  |  |  |
| 1 | 10 | 100 | 10 |  |  |  |
| 2 | 25 | 100 | 20 |  |  |  |
| 3 | 45 | 100 | 30 |  |  |  |
| 4 | 70 | 100 | 40 |  |  |  |
| 5 | 90 | 100 | 50 |  |  |  |
| 6 | 105 | 100 | 60 |  |  |  |
| 7 | 115 | 100 | 70 |  |  |  |
| 8 | 120 | 100 | 80 |  |  |  |
| 9 | 122 | 100 | 90 |  |  |  |
| 10 | 123 | 100 | 100 |  |  |  |

1. What is the equation for average cost of a product? Why is the average cost for 0 workers left intentionally blank?

1. What is the equation for marginal cost? Why is the marginal cost for 0 workers left intentionally blank?

1. What is the number of workers that will give the lowest average cost? Explain the implications of average cost associated with hiring this number of workers. Is this the point at which average cost is at its’ lowest?

1. If cookies were sold for $5.00 each, how many cookies should the company produce? Why wouldn’t the company want to produce more than that amount?

1. What happens to average cost when marginal cost is greater than average cost?

1. Create a scatterplot of total cost against the numbers of cookies produced.

1. Discuss the observed rates of change between different intervals of the graph above and what implications this may have for the company. Describe how these rates of change are related to the calculated marginal cost.

1. Why might this company look at marginal cost rather than average cost when determining how many cookies to make and thus how many workers to hire?