

Learning Journal Unit 1

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MATH 1211: Calculus

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1. Take one homework problem you have worked on this week that you struggled to understand and solve and explain how the struggle itself was valuable.

The homework problem I struggled with was part c of question 10 of the written assignment in unit 1.

Question 10 was as follows:

“A cellular phone plan had the following schedule of charges: Basic service, including 100 minutes of calls is \$20.00/per month; 2nd 100 minutes of calls is \$0.075/minute; additional minutes of calls is \$0.10/minute.”

Part c that I struggled with was as follows:

“c)Construct a function that relates the monthly charge C for x minutes of calls?”

2. Describe the struggle

The struggle in this question was the confusion in different the charges depending on the time of usage. Constructing a function that relates the monthly charge C for x minutes of calls left me wondering whether the x minutes is less than 100 minutes which its charge is capped at \$20 or it is more than 100 minutes that will attract additional charges. I was imagining how can I construct a single function defining the charges of the cellular plan regardless of the duration of the call.

3. How you overcame the struggle.

To overcome the struggle of constructing a function that relates the monthly charge C for x minutes of calls, I decided to construct a function for each call duration, meaning I had to come up with three functions, one for the first 100 minutes, two for the calls between 100 and 200 minutes, and finally for the calls exceeding 200 minutes. In so doing, I finally managed to construct the three functions as follows:

- For $x \leq 100$ minutes: $C = 20.00$

- For $100 < x \leq 200$ minutes: $C = 20.00 + 0.075 * (x - 100)$
- For $x > 200$ minutes: $C = 20.00 + (0.075 * 100) + 0.10(x - 200)$

4. Discuss whether struggling built aspects of character in you (e.g. endurance, self-confidence, competence to solve new problems) and how these virtues might benefit you in later ventures.

The struggling built aspects of character in me when answering this question was a combination of endurance competence to solve new problems. Despite spending long time figuring out how to construct a function that relates the monthly charge C for x minutes of calls, I did not give up. I tried multiple times solving the questions in different ways until I managed to find the solution. Moreover, I would say that the competence to solve new problem also helped me in this question. I had to apply basic knowledge of constructing linear function learnt in algebra to figure out how to approach the question. In a nutshell, I would say that were it not for the endurance and the competence to solve new problem, I would have not been able to answer this question. Fortunately, I am glad that I managed to solve it in the end.