Multivariable Calculus Summer Assignment 2022

In this summer assignment, you will review parametric and polar equations, graphs, and calculus as well as practice derivative and antiderivative rules. From the accompanying links on the school website, please find the files "Parametric and Polar Practice," "PPP Answers," "Derivative Blitz," and "Integration Circuit." All are in pdf format. Please print out this letter for reference!

I suggest you wait until August to do the summer assignment. Also, I recommend that you do NOT do the assignment all at once, instead spread the work out over a few days.

You are expected to:

1. Use pencil to do your work. Be very clear and neat in your presentation – **this assignment will be graded**! Write your name in the top right hand corner of each page of the assignment. Feel free to consult your AP Calculus BC (or Calculus II) notebook as needed!

2. Print out the "Derivative Blitz." Work all problems on the sheet. If you need extra room, use lined paper and attach.

3. Print out the "Integration Circuit". Work all problems on the circuit in the space provided. If you need more room, use lined paper and attach.

4. Print out the "Parametric and Polar Practice." Work all problems on your own paper (use loose-leaf lined or graph paper). Leave **at least 1 line** of white space between each problem. **Copy the problem as given, then SHOW ALL WORK or explain your reasoning in getting your answer.** You may use both sides of the paper if it is not too thin. (You don't want your checking color to bleed through.) No calculator is needed. Warning: no credit will be given for "Answers Only." Staple the printed page to the top of your work.

4. After completing the Parametric and Polar Practice, print out the file entitled "PPP Answers". Check and Correct (C&C) your work using a red or blue pen (or other contrasting color pen or marker or pencil) as follows.
    - If your answer is correct: place a check mark (✓) in the left margin beside the number of the problem.
    - If your answer is incorrect: place an X in the margin, and then write the correct answer at the end of the problem. **You must try it again (on another page if you don't have room next to the original).** If you still cannot get the right answer, place

a question mark (?) in the margin – we will go over all such questions!
- You should also place a star (★) in the margin for any problem that you believe is especially important (or if I emphasize the problem during class processing time).

5. Paperclip all your work into one packet. **This collection of problems will be the first graded assignment of the course and is due the first day of class.**

In addition, I recommend that you review **basic applications** of the derivative and integral such as tangent line, rate of change, particle motion (especially vector and parametric forms), optimization, area, volume, arc length, etc.

The summer assignment is an important first step in making sure you have a firm foundation for the study of multivariable calculus. Throughout the course, you will frequently utilize many important concepts and skills from single variable calculus. Your AP Calculus BC or Calculus II notebook will be a valuable resource throughout the coming school year!

Here's to a great year of multivariable calculus!

Lynn Foshee Reed
lreed@gsgis.k12.va.us