
UM-SJTU Joint Institute
Vv285 / MATH285

1^{st}
UM-JI INTEGRATION BEE



DATE: 3 JULY 2021

1 Introduction

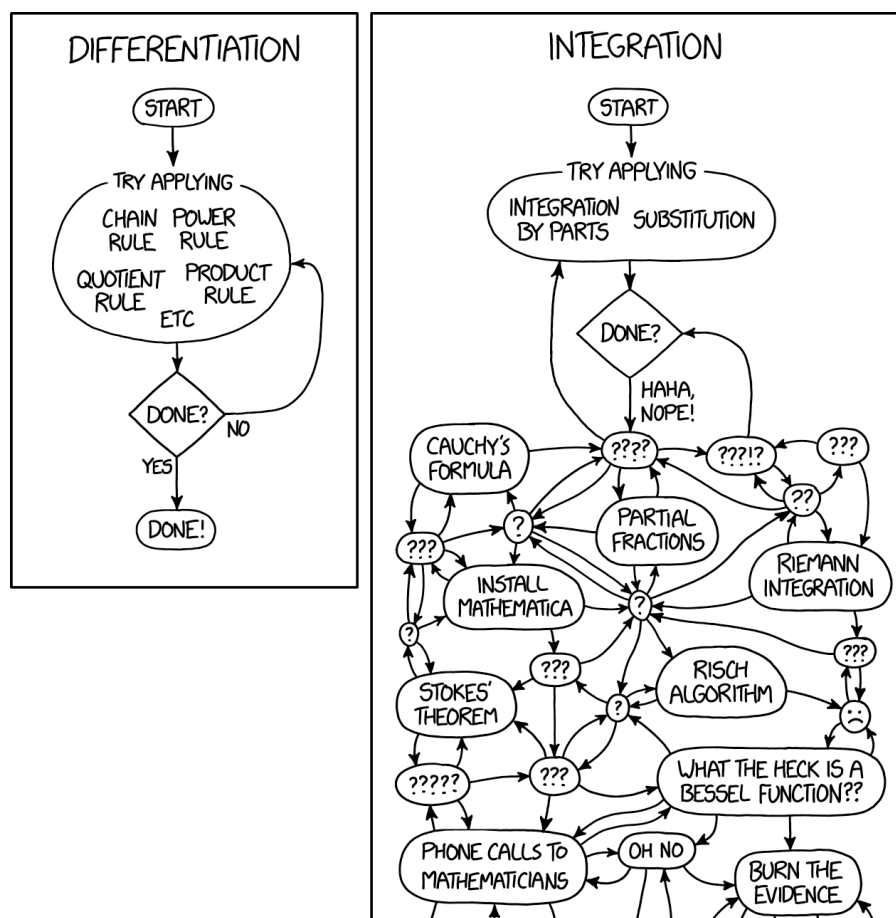
Integration Matters for Engineers! While in Vv285(MATH285) we will discuss a lot about theoretical aspects of integration, the ability to evaluate concrete integrals is still indispensable.

First, evaluation of concrete integrals is essential for doing hard analysis. Second, in higher level courses like VE215, VE203, VE216 and so on, calculation of integrals is common. Above all, this may help students prepare for exams of MATH285, since it is likely to contain more calculations than those in Vv186.

We would like to hold the first JI integration competition several days before Midterm 2. The integrals in the competition will mostly be on multi-variable or vector-valued functions, which are just what students will study before Midterm 2. Thus, the activity may help them review and solidify the knowledge they need for the exam.

2 Objectives

- Help students get familiar with the procedure of solving problems related to course material.
- The idea came from MIT Integration Bee. We have some students who are interested in it when we mentioned this back at Vv186.



Integration is **HARD!**¹

¹<https://xkcd.com/2117/>

3 Procedure

- To take part in the competition, every student will need to form a **group** for signing up.
- You can choose your teammates! Every group will have a maximum of **3 students**.
- We will design a problem sheet, which includes **15 problems**.
- Every group will have **60 minutes** to complete your work.
- The result will **only** depend on your answer, no procedure marks will be given.
- Every group can decide how to arrange their work. For example, one team can work on every question together and move on to the next problem together, or each group member completes different problems by individuals.

4 Regulation

This is just a fun activity, but still please take it seriously. We don't want to see some cheater to win this activity! So only pencil and paper are allowed when you do your calculation. If one just plug in the function into, let's say Mathematica or Integral Calculator, then what's the point?

(p.s. If you want to bring a calculator, it's OK. But it is not so helpful anyway.)

5 Rank

The rank will *only* depend on the score your group gets. Every question will have its points depending on how hard it is.

Additionally, if some groups' points are the same, *we will hold an extra battle on the black board!*

6 Prize

SECRET!

But we can make sure that everyone who attend this competition will get something!