

5 Algebraic skills

1. Completing the square!
2. Properties of logarithms (change of base, adding / subtracting natural logs)
3. Hyperbolics and Euler's identity
4. Domains of trig functions, especially ones with discontinuities like tangent
5. Graphs of common functions like e^x , $\log x$, x^n , since they are useful for doing volume problems.

3 Recommendations

1. Make a study sheet for each quiz and test that summarizes the concepts, equations, and identities for the chapters.
2. Always check if definite integrals are even / odd functions! It will save time and embarrassment.
3. Instead of memorizing the patterns to identify doing trig substitutions when integrating, just remember the two basic trig identities (with sin and cos, tan and sec) and learn to see the relationship every time. This also helped me to not get confused when there were other constants in the integrand).

2 Study or personal mistakes

1. Not memorizing all of the derivatives of trig and inverse trig functions at the beginning of the quarter.
2. Not spending time re-doing quizzes to make sure I understood my mistakes.

Dear future students

5 pre-requisite skills you need to master:

1. Trigonometric identities, especially $\tan^2x + 1 = \sec^2x$
2. The special angles, e.g. $\sin 90=1$, $\cos 90=0$, $\tan 45=1$, etc.
3. Inequality
4. Graphs of the commonly used functions, e.g. e^x , $\sin x$, $\tan x$, $\cos x$, $\ln x$, etc
5. Partial fraction

3 recommendations to improve your chance of succeeding in this class:

1. I highly suggest you make a study group. Unfortunately I formed a study group late in the quarter as I didn't know anyone in this class. If you're in this class with your friends, good. Have at least 1 group study session once a week. But if you're like me, don't be shy: get out of your comfort zone, make friends, and form a study group. It doesn't matter if your study group mates are smarter or "dumber" than you. I realized you can also learn by explaining the concepts or answering questions from your study group mates. Group studying, if done correctly, will really help in having a stronger grasp in the concept as you get to fact check with your friends.
2. The pace of this class is pretty fast as there are a lot of materials to be covered. Your head will probably be overwhelmed by the sheer amount of concepts you have to digest and retain. After copying the notes from the class, transfer it to a separate notebook, make a mind-map of the important concepts that you need to memorize. This is especially true for the Fundamental Theory of Calculus (FTC I, II and III).
3. Have a tidy working so that when you solve questions, chances of making a mistake such as copying the wrong equation or forgetting the negative sign will be less. You can make this habit by writing your work "properly" whenever you do your homework or when you practice on your own so that it becomes one of your habits.

2 mistakes that I made in this class:

1. I was not familiar with the trigonometry anti-derivatives. All the common anti-derivatives were at my finger tips, but I wasn't familiar with the anti-derivative of $\csc x \cot x$ / $\cot x$ / $\csc x$ / $\sec x$. Be familiar with all the anti-derivatives as solving definite integrals is mostly about recognizing the pattern.
2. After getting a pretty decent score on my pre-requisite test, I had this false sense of assurance that 1B was not going to be that difficult. But, I was wrong. Even if you do well on the pre-requisite test, or the quizzes, never get complacent.

Personal Development Exercise

- A. Five algebraic skills that I did not master before this class are using sigma notation, using the discriminant, finding limits, knowing the graphs of different polynomials, and symmetry of functions.
- B. I recommend students to active listeners and thinkers during lectures. It is easier to learn and remember the material if one attempts to solve the problems with the professor instead of mindlessly copying down notes. Orally answering questions that the professor asks helps both you and other students to remember the material. Another recommendation is that students should space out the homework. Sometimes there are many homework problems for each section and the sheer amount can seem overwhelming, so students should work it over the course of two or three days. This will help keep the information fresh in their minds. However, they should not take too long to do the homework because they may fall behind. Also, I suggest that students should go the tutoring center as much as possible. I tend to get distracted at home, so a place where there aren't TVs and refrigerators is a good environment to work on homework and study. Being surrounded by people doing math encourages one to do so as well and there are always tutors.
- C. One mistake I made was not doing all of the homework problems, which mainly hurt my quiz grades. In the beginning I did do all of the problems, but after a while I mainly only did problems that were a bit complex. Although there were many problems that used similar techniques, practice is essential. Doing similar problems embeds the techniques into the brain so they won't be easily forgotten. Another mistake I made was not studying over several days for quizzes, midterms, and especially the final. I procrastinated too much and only studied a few days before. Again, everyday practice is the key to becoming familiar with new material and remembering it for longer periods of time.

Personal Development Essay

If I had master of some more of my basic algebraic skills, I wouldn't have struggled as much as I did in this class. Most of my problems stemmed from my knowledge of trigonometry. I was pretty fluent in trig in high school, but that was when I was a sophomore taking trig, 3 years ago. If I knew my trig fundamental identities, the double angle formulas, and the angles better, I wouldn't have spent so much of the first 5 weeks struggling. Some problem also came from the more basic integrals/derivatives that I memorized as a junior. It was all the trig derivatives and some of the rules of derivatives, such as L'Hopitals and the Chain rule. I couldn't recall them so I messed up my first few quizzes because I didn't do my integrals correctly. Also, I wish I was more fluent with my functions and their graphs, especially the \ln and e^x graphs. In order to do very well in this class, you need full mastery over trig identities and formals. This will allow you to manipulate them in any way for doing trigonometric substitution as well as recognizing some integrals as a trig identity. You will also recall them faster and be able to complete about 1/4 of the course if you have complete mastery over your trig. Find a study partner. I'm only in my second quarter of De Anza and I barely know anyone, even within my class. It's not that I'm not amicable but I'm a bit focused and didn't want to meet anyone the first few weeks. This made it difficult to find a study partner and form groups to study for big tests, which is one of the big keys items that Professor Lo recommends his students to do. It's also helpful if you have a friend who can give you notes and homework if you are absent. My last recommendation is don't take this class unless you have 3/4 mastery of the basic concepts or at least are willing to put in the extra effort to get you math skills up. I struggled so much because I haven't taken calculus in 2 years. Knowing you basics will allow you to breeze through the hyperbolic sections, the first bit of integrals, and understand how to manipulate integrals much faster and in a shorter way. Since I lacked that skill, I also felt downtrodden so I kind of skimped on my homework a bit. No, I did not skip doing my homework, but I did get lazy and didn't do all of it. I relied heavily on my class knowledge and intuition, but that only got me so far. I needed all the practice I could get in order for me to face the problems which were not present in lectures. Most problems come from homework, midterm packets, or something that the professor throws at you, but 2/3 things I just mention comes from study material. So do your homework and midterm reviews, and do every problem. My other mistake was that I waited until the 2 days after to do homework and usually the day before the study. So basically, I procrastinated a lot. You won't have enough time to soak in the information, even if you review very well or do a bunch of homework problems. I did that and information was scrambled in my mind when I went into a test or quiz. It was cluttered and there was just too many types of problems that I tried to memorize, and I couldn't match the proper way to solve it with the problems on the test. Plus I even forgot formulas at times. Cramming is not worthwhile for studying. When I look back, even studying 2 days is not enough to soak in information. Start studying one class to two class days ahead and review a bit of old information, so that it slowly soaks into your long term memory.

I have learned a lot and enjoyed studying in Math 1B class, however, I wish I knew what I know now and took some steps to improve my understanding. From the beginning of the class I had problem with remembering trigonometry formulas and derivatives of inverse trigonometric functions. I had to spend more time than I expected in order to remember and learn those again which took me a lot of time and energy, yet I don't feel that I am master in those areas yet. If I was more ready in those areas I would have spent less time on exams or when doing homeworks trying to remember the formula, and still sometimes I would get them wrong.

I recommend all students to spend enough time on doing homeworks as it really helps improving our understanding. Also, it may be good to have a cheat-sheet at home which contains all formulas we need to remember, and study it whenever we are doing homework, or when we are studying for quizzes. I also recommend studying the book, as students may not be able to solve all homework questions by studying only the notebook, and eventually it may cause them to do poorly on quizzes.

One of the big mistakes I did that I think impacted my score is that I started to re-study trigonometry formulas very late in the quarter. I lost some point before I finally tried to learn them, and because it was late, I still am not very good at it. Moreover, I knew some students who would not listen carefully at class, so they did not get some of very important concepts, and they had missed some hints that were given before exam days. Eventually they had to drop the class.

I hope everyone does his/her best at this class.

Personal Development Exercise

A. 5 algebraic skills you should master.

1. double angle identities.
2. Polynomial long division.
3. Areas of trapezoids, circles, triangles and rectangle.
4. Inverse sine/ cosine/ tangent
5. Symmetry of functions and graphs.

B. 3 recommendations for success

1. listen carefully in the class. It is the most important thing in study math. This can help you understand the context and know how to do the homework.
2. study hard at the beginning of the quarter. Very important! If you do very well in your first midterm, you can average one of your next two midterms. You can also save a lot of time in later study. It is better for you to study step by step rather than swallow up all thing at one time.
3. Make use of the office hour. You can ask any questions you do not understand and make improvement from mistake. You can also defend you work in office hour. Do not give up. Even though sometimes you can not get credits back, at least you can know why you are wrong and ovoid this kind of mistake next time.

C. 2 personal "mistakes"

One mistake I made in this class is in my midterm 1. I made this mistake because I did not remember the exactly definition of inflection points. So review what you have studied before carefully.

Another mistake I made in this class is in my midterm 2. I didn't read the question very carefully, so I find the mean value instead of median value. This is a stupid mistake. So always remember read the questions very carefully and you will find it is not so hard to success in this class.

Personal Development

Skills

From previous classes, it's really helpful to know log rules, exponential rules, all the trig identities, trig and inverse trig graphs, and what the other basic graphs look like (\ln , e^x , etc).

Increase Chances of Success

It's really helpful if you form a study group with people from the class. It's good to see how other people solve problems, especially with integrals, because they may teach you a new way to solve the problem. This is also helpful, because the best way to learn something is to teach it, so in the study group, it's beneficial for you to help someone out who is struggling. Next, I would say go to the Math Tutorial Center. It's such a good resource to turn to if you have a question about a specific problem or a concept. It's also a good way to meet other people from whatever math you're in, so you can help each other out. The last tip is to make sure you ask questions from the homework. This is helpful because people do teach math differently, so if the tutor confused you or you still don't understand a concept, it's best to hear it from your teacher. It's also helpful for other students in the class who might not have understood that same concept.

Study Mistakes

A common mistake that is detrimental to your grade is waiting until the weekend before the midterm to start studying. The teacher will email the midterm study guide usually a week before the midterm, and it is hard to start then because of homework from other classes, but in the end it is beneficial to start studying right as you get the study guide. It gives you more time to practice concepts and ask questions. Don't fall behind on homework. Since it's a quarter system, if you fall behind on homework it's going to be hard to catch up quickly. Homework is how you practice the concepts learned in class, so you aren't going to actually understand anything if you don't do the homework after hearing the lecture in class.

Math 1B Personal Development

5 skills to improve on:

- Logarithms
- Polynomials
- Multiplicative and Divisional properties of exponentials
- Negative exponent vs inverse
- Rules of limits and continuity

3 Recommendations:

- Work with at least one other person in the class for homework. IT HELPS
- Always do the homework
- Master each lesson the day it's taught rather than cramming towards the end

2 Mistakes:

- I didn't actively study the specific steps for solving longer problems
The portion of the class that covers methods of integration contains a lot of different techniques to master. Forgetting even a variation of a technique can cost you when it comes to the midterms.
- I didn't learn to catch my mistakes while solving problems
My biggest struggle with this class was my own amount of natural error. I didn't have trouble the material. It became difficult at times, but they were simple to master. If you are someone who makes many stupid mistakes, learn to catch yourself when solving homework problems. It will help **A LOT**.

Personal Development Exercise:

A] A few skills that students should master before 1B are their trigonometric formulas as this makes it easier to figure out integrations. One should learn their graphs so that they can do volume problems. They should memorize derivatives, values of important logarithms and exponentials as well as how to evaluate limits along with L Hopital's rule.

B] You should always do the homework. Although the final is mostly from the review packets, doing the homework will significantly improve your quiz scores. It will also help develop your understanding of the concepts.

For the mid-terms do the review packets religiously. The concepts on the midterms are the same as those given on the review packets. If you can understand and solve the problems on the review packets with confidence, you will be able to figure out the questions in the midterms.

Use the group tutoring. Most students don't go to group tutoring so for me it was like private tutoring but with a student who had taken the same professor and not only helped me better understand concept but also gave me tips on how to do better in the class.

C] The first mistake I made was not reviewing my quizzes and midterms after they were graded. I think if I solved the problems that I couldn't solve during the tests later I would have been able to stop repeating the same mistakes. This would've also helped me identify where I need more work.

Another mistake I made was not mixing up the questions while doing them. In the review packets it states that we should cut up the questions and pick them at random and do them. One should really do this as it makes it easier to identify the process of how to do the questions in quizzes and tests.

- a. Five algebraic skills that I or someone I know did not master well and caused problems.
1. Concepts of some trig functions ($\csc x$, $\cot x$). For example, once I stuck on how to antidifferentiate $(1+\cos t)/\sin^2 t$, which can be simply written as $\csc^2 t + \csc t \cdot \cot t$.
 2. Derivatives of some trig functions. ($\csc x$, $\cot x$). Sometimes I had to calculate derivatives of $\csc x$ and $\cot x$ during tests, which caused a lot of time wasted.
 3. Derivatives of some inverse trig functions. The bad effect is similar to No. 2.
 4. Some concepts of hyperbolic functions.
 5. Graphs of some functions.
- b. Three recommendations
1. Stay sharp during classes. Taking notes is not enough. We should think about the notes and understand them before writing them down. Understanding is more important than memorizing, and understanding helps us memorize things.
 2. Stay focused in classes. Each class is really continuous, which means if you get absent minded in class at a time, you will have trouble catching up during the rest time of class. If you don't want to struggle during classes, do not try to do something that are not related to what you are learning during class time.
 3. Do homework wisely. The purpose of doing homework is not to just finish something. You are supposed to know how to do one type of problems by doing a few problems under similar conditions. Practice makes perfect, and it's our job to sum up what we've gained from practicing and master what we've learned.
- c. Two mistakes
1. One mistake I made was that I didn't realize the importance of memorizing some formulas, derivatives and antiderivatives. One bad impact was that I had to spend a lot of time calculating something that can be simply written if I had memorized it. Another bad impact is that my way of figuring out solutions to a problem was restricted, which lead to unnecessary work.
 2. One mistake someone I know have made was not being careful enough during tests. Since the numbers in the questions are designed to be easily calculated, a small mistakes in calculation might make the thing you are evaluating look terrible. Also, if you didn't notice something "small" but important in the question, you would probably do it incorrectly.

Personal Development Exercise

Algebra skills:

1. Get used to the 6 trigonometric function and the 3 Pythagorean identities. If you take $\sec x$ as $\frac{1}{\sin x}$, you may lose all the points for the question.
2. Know how to do long division. When you subtract, be careful of the signs. Check after calculating.
3. Be familiar with the derivatives of basic functions (power, exponential, logarithmic, trigonometric, inverse trigonometric)
4. Don't forget to use the chain rule.
5. Be careful of the domain whenever you solve an equation or a definite integral problem.

Recommendations:

1. Do the homework. Although you may not have time to solve every single problem completely, you need to make sure you know how to do them. It is a better way to help you understand the material better. If there is a question you cannot figure out how to do it immediately, write it down on a paper and try to solve it completely. That will help you be more familiar with the material and save time in exams.
2. Take advantage of the review packets. Some questions in the tests and the final exam are taken directly from them with just the number change. If you do all the questions, you can reduce the points losing in tests.
3. Work in group. It is a good way to do your homework or review for the quizzes/midterms/final exam with your classmates because you can ask questions, compare solutions, and learn better methods.

Mistakes need to avoid:

1. When using u -substitution to evaluate definite integrals, do not forget to change the values of upper and lower limits, and keep them in their positions. If you do not change the limits, you will plug in the wrong numbers when calculating the final answer. If you just take the smaller u as the lower limit, you may get an opposite result compared to the correct answer. There is another method you can use to avoid the mistake: find the anti-derivative of the integrand first, and then, plug in the numbers of x .
2. You should review for each quiz, midterm, and final exam. You need to look through our notes, memorize the formulas, and solve several problems to practice. You may think quiz only cover a few things, and you have already understood them, but it is not the case. The review can give you a kind of "feel" and help you solve problems smoothly during exams.

Personal Development

A.) Algebraic skills that I didn't master before

- The image of graphs of polynomial functions
- Double angle formula for trigonometry
- The understanding of limit
- Calculation of summation
- Differentiation of inverse trigonometric function

B.) Recommendations

- To be familiar with the graph of all function. This is important because we are required to sketch a graph for the function in this class. If you have an idea what the graph of the function look like in your brain, it will save you lots of time.
- Have clear notes in the notebook. In this class, we have plenty of math knowledge need to learn. Having a clear note can help to get what we had learned before and doesn't get confuse.
- Form a group discussion with classmates. This is very helpful because we can get some new ideas, and can find out some more efficient ways to solve the problems from classmates.

C.) Mistakes that I made

- Sometimes I will get confused on the negative and positive sign when I was doing math problems, especially in the derivative and antiderivative part. This mistake affects a lot because it leads me to get far away from the correct answer.
- Get confuse between derivative and antiderivative. At the beginning of the quarter, I sometimes will antiderivative mix up derivative and antiderivative. This hurts me a lot because I get totally different answer for the question, and we due with lots of questions between these two in calculus.

Personal Development Exercise

Bert Lo is a really good professor due to his really clear explanation and the way he teach you to really “master” the math. After one quarter’s learning in his class, here I have some really important things to share with you.

First is something that you really need to know before you come to this 1B class:

1. Pythagorean Identities

It’s including $\sin^2(x) + \cos^2(x) = 1$, $\tan^2(x) + 1 = \sec^2(x)$ and

$1 + \cot^2(x) = \csc^2(x)$. This is really important because in the second half of the quarter, you will need it to solve integrals. It’s really important because after using these identities, you can solve a lot of integrals by transforming them into different functions or substitution. And at first I don’t know some of them, and it makes me feeling hard to solve some problems.

2. Basic hyperbolic functions

Absolutely you will need this, including the formula of sinh, cosh and tanh and their derivatives. You will going to learn it at the beginning of the 1B class, but I still recommend you to study it by yourself because it can make you solve the problem faster. Unfortunately I didn’t study it well, so every time I need to spend a lot of time calculating the formulas which is a waste of time.

3. Basic graph technology

In the middle of the 1B class, graphing becomes a very important part of the knowledge you will need. You will be supposed to graph some easy function like

$f(x) = a^x$, $f(x) = e^x$, $f(x) = x^a$ and of course the ellipses and circles. I have a

friend who is not good at drawing the graphs, and he almost cannot do the middle-hard problems because he even doesn't know how to draw it.

4. The derivatives of basic functions.

When you are going to find an anti-derivative, you will need to guess what function's derivative is the same as what you have, then this technology is a must. You need to know the basic function's derivatives like $f(x) = a^x$, $f(x) = e^x$, $f(x) = x^a$, $f(x) = \log_a(x)$ and so on. Make sure you reviewed them before you come to this class. If you did so, you will find the class it's much easier than you think.

5. The way of solving the limit

The 1A class is almost about the limit, 1B is an extension of 1A, so you also need some strategies you learned from the previous class like L'Hôpital's rule. You will also need these things, better know well about them. I lost a lot of points on midterm 1 because of these mistakes. So I hope you can avoid these problems and get good grades.

As a student of Bert Lo, I think it's my duty to tell you some ways to increase your chance of success.

1. Do the note carefully.

Always Lo's notes include every important point that you need to understand. When you have the notes, you can increase your speed of studying. When I forgot something, I always take out my notes and look at it, and then I found what I missed. If you keep doing the notes, it will be a really powerful tool before you have the midterm.

2. Do the homework as much as you can.

Why I recommend you to do the homework is that only after you practicing a lot, you can really understand what is it about. I spend 5 hours every week to study math, doing the homework. And after practiced a lot, it really improved my problem solving skill. So if you want to success, please do the homework as much as you can.

3. Read the review package before the tests.

The fastest way to success is read his review packages before the test. The review packages include almost everything that will be on the test, with some problems even changed only some constants. So take you time and go though every review package is really important for you to get higher grade.

And also I have something to warn you, which are my personal experiences:

1. It's OK to make mistake on quizzes, because that is the way you learn.

However, try to avoid the mistake you already had in your quizzes. Because each mistake on the test may make you lost 5 times scores than the normal quizzes. And I made some stupid mistake, which made me feel really awkward after getting the tests back. This is the first really important thing you should avoid.

2. YOU MUST SHOW YOUR WORK CLEARLY AND LOGICALLY FOR CREDIT. This is always works on math. Please try your best to write down all the steps that you need to solve a problem. If you missed some steps, you may get only partial credits. But if you only calculate the answer wrong, you will only lose a little bit of your points. How you get to your answer is more important than your answer. I forgot to write down some steps in midterm 1 and that makes me lose 3pts each

question and added up to 9pts, which is actually a big amount.

So here I really recommend you to following the things above. And hopefully you can success in this class.

Personal Development

[a] 5 Skills that I had no mastery of before taking this class

- Trig Values
- Trig Identities
- Arithmetic
- Limits
- General graphs of basic functions

[b] 3 Recommendation for future students

- Memorize all the trig values because they resurface. A lot. Also know the corresponding inverse trig values. Know the relationship between sine and cosine and the various identities they share because this also resurfaces a lot.
- Understand concavity, increasing/decreasing, and the relationship between a function and its derivative. You will have a solid foundation in understanding why a graph behaves the way that it does vs solving the problem but not knowing what is really going on.
- Get in the habit of sanity checking your work. This will help you deepen your understanding of the concept being learned and also make sure your solution is correct. Plus, it's another added exercise which will help you in being able to recognize where you may have made your mistake and correct that step.

[c] 2 Study/Personal mistakes I committed

- Formed a study group during the last half of the quarter when I should have formed it earlier because study groups force you to know the material when you're helping others. Added bonus that everyone in the group is equally trying to learn together instead of feeling like they're forced to be there.
- Relied heavily on the Fundamental Theorem of Calculus. FTC isn't always the go-to method of solving an integral. Rather, there are several methods you try before using the FTC. Having these extra methods allows you to solve the problems in different, and sometimes faster, ways.

Personal Development Exercise

A)

1. Remembering to take the derivative inside the ln. $f'(x)$ of $\ln(x) = (1/x)(x')$
2. Knowing graphs of \ln , e^x , $1/x$, and also transformations of graphs.
3. Trig Identities. Especially the double angle formulas like $\sin 2x = 2\sin x \cos x$
4. Basic algebra such as adding and subtracting. There have been many cases where I made simple algebra mistakes like $5+2=10$ when it should be 7 and it threw my answer off.
5. Property of powers. $X^5(X^5) = x^{10}$ not x^{25} . Or $(X^5)^5 = X^{25}$ not X^{10}

B)

1. Don't fall behind on homework or wait until the last day to do it. I did homework last minute or piled up on homework so either I rushed it or did some of it. When you do your homework, you're practicing the concepts for that chapter/section. When you get more practice you're more familiar with the concept and when you see the test, you will be able to recognize what steps to do. Also, the midterms/quiz are similar to what you see on the homework so completing it is very helpful for yourself. You will be more successful if you come prepared to class.
2. Go to the group tutoring. I went a few times and was able to find the help I needed. Even just going to the tutoring center is helpful because you can get help. If you just skip the question and don't go back to it without asking for help, you will never know how to do it. This also includes office hours because you can ask Mr. Lo about a question on a quiz/midterm and that will help you do better next time if you know how to solve the mistake you had made previously.
3. Study in groups with your classmates. Beginning of quarter I studied by myself however towards the end when I started studying with other people, I found myself doing more work and getting help from peers helped me understand questions. This doesn't mean copying their answer but we would compare answers and how to solve the question in the most convenient way. When you study by yourself, sometimes you will feel lazy but when you are with others, you feel motivated to do work with them.

C)

1. Time management was a mistake I made because up to the 2nd midterm I did not sufficiently use my time to practice math concepts and study. As a result, I did poorly on my first midterm and took a big hit to my grade. It doesn't take a lot to at least go over the notes and fully understand and keep practicing to master the concept so that you will feel prepared for a test.
2. Go over your work or check your work at least once during midterm/quiz. The small mistakes will always come and that includes negative signs. Negative signs will cost you points because it will carry on to the work and eventually the answer. This also includes making $1/x^2$ into x^{-2} because I forgot the negative sign in the exponent and gave a totally different answer when I integrated it.

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Personal Development

- 1) In Mr. Bert Lo's class, I learned the importance of five basics:
 - a) Long division: So you can do integration later on
 - b) Trig Identities: Helps you with Integration by parts and trig substitution
 - c) Basic graphs: So can do the limits without calculating
 - d) Polynomial: The very basic but a lot of people struggle to define
 - e) Basic series: For the beginning of the class
- 2) Advice for students:
 - a) Not only do the homework but ask the professor and peers, especially peers because Mr. Bert Lo doesn't have time for everyone. Open your mouth and ask for help.
 - b) Keep your spirit positive, most people fail the class not because of their ability but their wrong mindset like: "I can't do it", "This class sucks", etc. Not only will you make yourself worse but you deliberately let people down!
 - c) **DO THE WORK**, Math is trial and error. If you flipped a test, don't worry 30 lost is insignificant to 1000 points total so have fun!
- 3) 2 mistakes you would make:
 - a) You don't review after class till the close end.
 - b) You don't ask for when you need it.

5 Algebraic Skills That I Did Not Master Before This Class:

1. Graphs of trigonometric functions (esp. inverse trigonometric functions)
2. Values where trigonometric functions are discontinuous
3. “Careful” arithmetic (the signs in problems)
4. Long division
5. Graphs of conic sections (esp. ellipses)

3 Recommendations:

1. Formulate a system on how to effectively approach a problem. Most of this class is knowing what pattern of technique you should apply to a certain problem in order to get it right. If possible, write down a step-by-step procedure on how you could possibly solve it, accounting for all possible cases.
2. Practice, practice, and practice. Once you formulate the above system, the best way to get it ingrained into your head would be to practice the assignments given in the book. Practicing can also help you refine your system of approaching a problem, revealing spots where your system is lacking.
3. Try to rely on a minimum amount of resources when doing assignments. Relying on resources such as calculators or websites like Wolfram Alpha can cause you to be depended on them. This is particularly unhelpful as tests tend to be without a calculator and don't build the elusive attribute of mathematical intuition.

2 Personal Mistakes:

1. Do not get discouraged on 1B after a couple of low test scores. Remember that the greensheet allots an extra 30 points for the quiz section. Do not be like me - going downhill for the whole quarter after a few bad quizzes. A B may not be as good as an A but it's surely better than an D.
2. Take advantage of office hours. While they may be inconvenient towards your current schedule, office hours allows you to get additional clarity on confusing questions. I did not take advantage of office hours and relied on the internet which made me realize that the internet does not always tell the truth. Instructors, on the other hand, can be trusted in the topic they are teaching.

Dear future Math 1B students,

Below are my personal tips that I wish I had done to do better in this class. Might not be useful to everyone, but hopefully you are the one that will find it helpful.

5 algebraic skills you want to master before this class:

1. Limits. Especially L'Hopital's rule. It will be tested on the diagnostic quiz, and it WILL reappear intensively later in this course.
2. Memorize all trig identities and formula, and know how to utilize them too. A lot of people including myself lost significant amount of points on the first midterm because of this memorization.
3. Memorize all trig derivatives and inverse trig derivatives. Especially pay attention on positive and negative signs, since they are often being mixed up by students.
4. Know how to sketch graphs for basic functions. These functions are specified in the prerequisite review package and you do need to know ALL of them for the diagnostic quiz and other quizzes and midterms.
5. Know the difference between critical points and reflections point and how to identify them in a graph.

Do's:

- Do homeworks. It sounds cliché, but it is true for this class, or at least for myself. Some of you would probably be thrilled to learn that homeworks are not collected nor graded for this class. Yes they are not graded because everything is reflected in quizzes and midterms.
- Take review packets seriously. Some problems in quizzes and midterms are extremely similar to the ones in review packets and homeworks.
- Memorize formulas, theories and definitions thoroughly before each quiz and midterm. Those are definitely not given during each quiz and midterm and no cheat sheets are allowed either.

Don'ts:

- Don't slack off for the first half of the quarter and hope that you will catch up later, because for most cases you won't. This class moves on so fast that it does not allow any slacking, except you are incredibly smart and gifted, which is not most of us.
- Do not underestimate a topic even if you had some knowledge about it from your previous experience. I encountered some familiar concepts at the beginning of the quarter that I thought I might have advantage on, but still did horrible on the quizzes.
- Do not come for quizzes and midterms sleep-deprived, or try your best not to. You might fail to recognize some details like me and regret for those careless mistakes later.

Hope you do well in this class, good luck.

Since this class requires a lot of background knowledge, I had to relearn my basic algebra. Learning how to complete the square was one of the most useful techniques, along with identifying graphs. I relearned my trigonometric identities, and the derivatives along with the ranges and domains of certain functions. I finally understood how to identify whether or not a function would be odd, even or neither. This is extremely helpful when doing the integration. It will save a lot of time on both the midterm, and quizzes. Remembering the FTC is the absolute most critical skill in this class. Without a strong understanding of the FTC, yes this means being able to repeat it word for word, there is no way I would be able to evaluate certain functions.

In this class, one of the most important things to do is follow the schedule. Putting in the time to do the homework and staying on schedule will create a series of repetition and practice that will create a strong foundation, and expose you to a variety of problems that are not provided on the midterm review. Staying on schedule includes doing the homework when it is assigned rather than putting it off until later because it will pile up and backfire. Cramming does not work, and doing the work will allow you to ask questions and work in groups more efficiently to understand the material better.

If you are struggling, the tutorial center in S43 is one of the most helpful places I have gone to get the help I need. Be specific with the questions, and if you do not understand it, then tell them. They are great with helping students understand the problems. Make some friends in Math 1B, and create a study group. This way, everyone shares a different way on how to approach a problem. If one way seems to long, someone else might have a different approach leading to the same answer that may be shorter and easier to do.

The mistakes I made in this class was rushing the integrations rather than taking my time. There are a series of steps to take before starting the integration by looking at the interval first, then the function. Although this may seem very obvious, this was one of the problems I did not recognize. The second mistake I made was not brushing up on my algebra skills like I needed. Take the time to actually understand everything on the review packet, and if you notice any struggles regarding background knowledge, make sure to strengthen these skills. Simple sign changes, and algebra mistakes may seem like tiny errors; however, these tiny errors actually lead to incorrect answers.