

AP CALCULUS BC SUMMER ASSIGNMENT 2017-2018



Congratulations on your decision to enroll in advance placement calculus BC! Choosing to take AP Calculus may have been a difficult decision; however the intellectual stimulus and challenges that drive the curriculum will be a reward in and of itself, regardless of the outcome in May.

As students in an AP class you have chosen to hold yourself to higher standards. This is admirable, but carries with it the inevitable burdens of obligation. You are obligated to give more of your time to studying. You are also obligated, by virtue of being a future innovator and/or leader, to hold yourself to high ethical standards. To succeed in this course, you must commit to try every assignment, not copy answers from other students or the Internet, and never, ever give up, especially when it gets hard. If you can't make that commitment, I urge you to rethink your choice of this class.

In this packet, there is a supply list, a list of important dates, and your summer assignment. I will be at the AP Scholar Day on August 4th to answer questions over the summer assignment and any additional questions that you may have. If you would like to reach me over the summer, you may text or call me at 727-457-3865.

I look forward to an incredible year!

Mrs. Traci De Leon

Student Supplies:

- TI-Nspire cx CAS (**MAKE SURE YOU GET THE CAS MODEL!!!**)
 - There are school calculators that you may rent on a first come first serve basis
 - The fee to rent the school calculator is 2 reams of copy paper
- Barron's AP Calculus Book
 - You can purchase from JWMHS for \$5
- 1 Subject Spiral Notebook (College Rule)
- Paper and Pencils
- iPad Stylus

Important Dates:

- AP Scholar Day: August 4th, 2017
- Summer Assignment Due: Wednesday, August 16th, 2017
- Quiz over Summer Assignment: Wednesday, August 23rd, 2017
- TBD in April 2018: AP Calculus Practice Exam and Final Exam (3-hours after school)
- 2018 AP Calculus Exam: Tuesday, May 15th, 2018 at 8am

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Students choosing to take AP Calculus BC are expected to start the school year with knowledge of limits, continuity, and basic differentiation rules. Students who have not had a calculus course will need to learn these topics over the summer. If you do not wish to learn these topics on their own, they should talk to a guidance counselor about changing their math selection to AP Calculus AB.

Khan Academy offers videos and practice to help teach and refine calculus skills. Your summer assignment is to complete practice exercises on khanacademy.org. You must be logged into Mrs. De Leon's class to receive credit. The exercises are due on Wednesday, August 16th, 2017.

Steps to Join Mrs. De Leon's AP Calculus BC Class on Khan Academy

1. Sign up at khanacademy.org (or log in with your existing account)
2. Visit khanacademy.org/coaches
3. There, in the "Add a coach" field, enter the class code **QNV8JD**

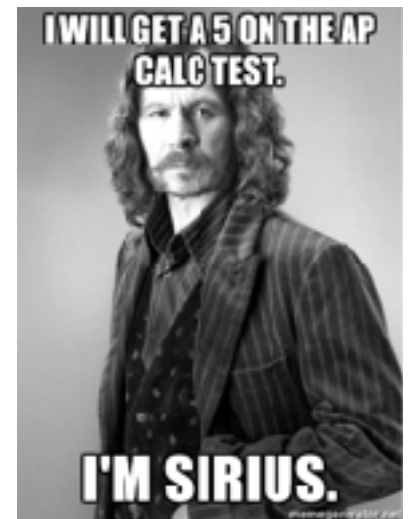
AP Calculus BC Summer Assignment

Visit www.khanacademy.org/math/ap-calculus-bc

Each practice exercise is 3-5 questions. It is suggested that you finish 1 topic per week over the summer. You need to complete the following practice exercises:

- Limits Basics
 - Limits from tables
 - Limits from graphs
 - One-sided limits from graphs
 - Limits basics challenge
- Continuity
 - Continuity at a point
 - Limits of combined functions
 - Limits of composite functions
 - Continuous functions
 - Intermediate Value Theorem
 - Continuity challenge

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- Limits from Equations
 - Limits by direct substitution
 - Defined vs. undefined limits
 - Limits by factoring
 - Rational function points of discontinuity
 - Limits by rationalizing
 - Limits using trig identities
 - Limits of piecewise functions
 - Removable discontinuities
 - Limits from equations challenge
- Infinite Limits
 - Unbounded limits: graphical
 - Unbounded limits: algebraic
 - Limits at infinity of rational functions
 - Limits at infinity of rational functions: radicals
 - Limits at infinity of rational functions: trig
 - Infinite limits challenge
- Derivative Introduction
 - Derivative as a slope of curve
 - Derivative & the direction of a function
 - Derivative as a slope of tangent line
 - Secant lines
 - Secant lines (with simplification)
 - Derivative as a limit: algebraic
 - Differentiability at a point: graphical
 - Differentiability at a point: algebraic
 - Visualizing derivatives
 - Derivatives basics challenge
- Basic Differentiation
 - Differentiating linear functions

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- Basic differentiation rules
- Polynomial functions differentiation
- Tangents of polynomials
- Negative powers differentiation
- Radical functions differentiation intro
- Sine and cosine differentiation
- Basic differentiation challenge
- Power rule challenge
- Common derivative challenge
- Product, Quotient, and Chain Rules
 - Differentiating products
 - Product rule
 - Differentiate composite functions
 - Chain rule
 - Differentiate quotients
 - Quotient rule
 - Product, quotient, & chain rules challenge
- Differentiating Common Functions
 - Rational functions differentiation
 - Radical functions differentiation