Dear AP Calculus student family,

Good morning! I hope that all of you are well and safe. Life is quiet in the country, but it's what I'm used to. Thanks so much for your emails and pictures, whether of yourselves or of problem solutions – it's good to get mail from you and be a part of your lives. Remember, I'm at home, so think **small file size** and only send **one picture per email**. For you who are diligently working on my plan, I believe that your work will pay big dividends. I have gone through all that the College Board sent out yesterday regarding topics covered on the AP exam, and I have written a shorter chart of an overview of AP units AND a longer chart which lists all of the units and topics covered and their corresponding sections in Baby that will be at the end. Since the test is short answer (SA) and not multiple choice (MC), several have asked me if there is any value in re-doing your old tests and the years of tests that you have and that are on Canvas. My answer is a resounding YES since it is MC that shows your grasp of facts and your capabilities with processes. SA questions could be MC questions without the choices. So, YES, keep practicing MC along with SA questions that you find in Baby, mainly in R sections. Make a study/review routine and stick with it throughout April. Honestly, this skill of time management and self-preparation will help you immensely in college.

I am writing this to all of my students, both AB and BC classes, so if there is something that doesn't apply to you, skim over it and move on. I am most tickled that we had finished all new content – while it may or may not be on the AP exam, your colleges will want you to know and understand it. So, don't feel the least bit unprepared for the exam OR for the next college calculus course. Know that you have been prepared, regardless of our lack of time together during April review, so be good students, and move on to complete your journey. Confidence and preparation will carry you far on this journey. And, the ability to adjust to change will distinguish you from those that cannot adjust. So, we proceed onward.

Now, the Overview chart:

Unit and Topics	**Baby Section**	**AB or BC or BOTH**	**On 2020 AP Exam**
Unit 1: Limits and Continuity	B	Both	Yes
Unit 2: Differentiation: Definition and Fundamental Properties	End of B and C	Both	Yes
Unit 3: Differentiation: Composite, Implicit, and Inverse Functions	C	Both	Yes
Unit 4: Contextual Applications of Differentiation	End of C and D	Both	Yes
Unit 5: Analytical Applications of Differentiation	D	Both	Yes
Unit 6: Integration and Accumulation of Change	E	Both	Yes
Unit 7: Differential Equations	G	Both	Yes
Unit 8: Applications of Integration	End of E, F	Both	No for AB Yes for BC
Unit 9: Parametric Equations, Polar Coordinates, and Vector-valued Functions	BC F	BC	No for BC
Unit 10: Inifinite Sequences and Series	BC H	BC	Yes for particular parts

Now, the Detailed chart:

Unit and Topics	**Baby Section**	**AB or BC or BOTH**	**On New AP Exam**
Unit 1: Limits and Continuity	**B**	**Both**	**Yes**

1.1 Introducing Calculus: Can Change Occur at an Instant?			
1.2 Defining Limits and Using Limit Notation			
1.3 Estimating Limit Values from Graphs			
1.4 Estimating Limit Values from Tables			
1.5 Determining Limits Using Algebraic Properties of Limits			
1.6 Determining Limits Using Algebraic Manipulation			
1.7 Selecting Procedures for Determining Limits			
1.8 Determining Limits Using the Squeeze Theorem			
1.9 Connecting Multiple Representations of Limits			
1.10 Exploring Types of Discontinuities			
1.11 Defining Continuity at a Point			
1.12 Confirming Continuity over an Interval			
1.13 Removing Discontinuities			
1.14 Connecting Infinite Limits and Vertical Asymptotes			
1.15 Connecting Limits at Infinity and Horizontal Asymptotes			
1.16 Working with the Intermediate Value Theorem			
Unit 2: Differentiation: Definition and Fundamental Properties	**End of B and C**	**Both**	**Yes**
2.1 Defining Average and Instantaneous Rates of Change at a Point			
2.2 Defining the Derivative of a Function and Using Derivative Notation			
2.3 Estimating Derivatives of a Function at a Point			
2.4 Connecting Differentiability and Continuity: Determining When Derivatives Do and Do Not Exist			
2.5 Applying the Power Rule			
2.6 Derivative Rules: Constant, Sum, Difference, and Constant Multiple			
2.7 Derivatives of cos x, sin x, e^x, and ln x			
2.8 The Product Rule			
2.9 The Quotient Rule			
2.10 Finding the Derivatives of Tangent, Cotangent, Secant, and/or Cosecant Functions			
Unit 3: Differentiation: Composite, Implicit, and Inverse Functions	**C**	**Both**	**Yes**
3.1 The Chain Rule			
3.2 Implicit Differentiation			
3.3 Differentiating Inverse Functions			
3.4 Differentiating Inverse Trigonometric Functions			
3.5 Selecting Procedures for Calculating Derivatives			
3.6 Calculating Higher-Order Derivatives			
Unit 4: Contextual Applications of Differentiation	**End of C and D**	**Both**	**Yes**
4.1 Interpreting the Meaning of the Derivative in Context			
4.2 Straight-Line Motion: Connecting Position, Velocity, and Acceleration			
4.3 Rates of Change in Applied Contexts Other than Motion			

4.4 Introduction to Related Rates			
4.5 Solving Related Rates Problems			
4.6 Approximating Values of a Function Using Local Linearity and Linearization (tangent lines and secant lines)			
4.7 Using l'Hopital's Rule for Determining Limits of Indeterminant Forms			
Unit 5: Analytical Applications of Differentiation	**D**	**Both**	**Yes**
5.1 Using the Mean Value Theorem			
5.2 Extreme Value Theorem, Global versus Local Extrema, and Critical Points			
5.3 Determining Intervals on Which a Function Is Increasing or Decreasing			
5.4 Using the First Derivative Test to Determine Relative (Local) Extrema			
5.5 Using the Candidates' Test to Determines Absolute (Global) Extrema			
5.6 Determining Concavity of Functions over Their Domains			
5.7 Using the Second Derivative Test to Determine Extrema			
5.8 Sketching Graphs of Functions and Their Derivatives			
5.9 Connecting a Function, Its First Derivative, and Its Second Derivative			
5.10 Introduction to Optimization Problems			
5.11 Solving Optimization Problems			
5.12 Exploring Behaviors of Implicit Relations			
Unit 6: Integration and Accumulation of Change	**E**	**Both**	**Yes**
6.1 Exploring Accumulations of Change			
6.2 Approximating Areas with Riemann Sums			
6.3 Riemann Sums, Summation Notation, and Definite Integral Notation			
6.4 The Fundamental Theorem of Calculus and Accumulation Functions			
6.5 Interpreting the Behavior of Accumulation Functions Involving Area			
6.6 Applying Properties of Definite Integral			
6.7 The Fundamental Theorem of Calculus and Definite Integrals			
6.8 Finding Antiderivatives and Indefinite Integrals: Basic Rules and Notation			
6.9 Integrating Using Substitution			
6.10 Integrating Functions Using Long Division and Completing the Square			
6.11 Integrating Using Integration by Parts	BC E		NO for AB YES for BC
6.12 Using Linear Partial Fractions	BC E		NO for AB YES for BC
6.13 Evaluating Improper Integrals	BC E		NO for AB YES for BC

6.14 Selecting Techniques for Antidifferentation			
Unit 7: Differential Equations	**G**	**Both**	**Yes**
7.1 Modeling Situations with Differential Equations			
7.2 Verifying Solutions for Differential Equations			
7.3 Sketching Slope Fields			
7.4 Reasoning Using Slope Fields			
7.5 Approximating Solutions Using Euler's Method			NO for AB YES for BC
7.6 Finding General Solutions Using Separation of Variables			
7.7 Finding Particular Solutions Using Initial Conditions and Separation of Variables			
7.8 Exponential Models with Differential Equations			
7.9 Logistic Models with Differential Equations			NO for AB YES for BC
Unit 8: Applications of Integration	**End of E, F**	**Both**	**NO for AB YES for BC**
8.1 Finding the Average Value of a Function on an Interval			NO for AB YES for BC
8.2 Connecting Position, Velocity, and Acceleration of Functions Using Integrals			NO for AB YES for BC
8.3 Using Accumulation Functions and Definite Integrals in Applied Contexts			NO for AB YES for BC
8.4 Finding the Area Between Curves Expressed as Functions of x			NO for AB YES for BC
8.5 Finding the Area Between Curves Expressed as Functions of y			NO for AB YES for BC
8.6 Finding the Area Between Curves That Intersect at More Than Two Points			NO for AB YES for BC
8.7 Volumes with Cross Sections: Squares and Rectangles			NO for AB YES for BC
8.8 Volumes with Cross Sections: Triangles and Semicircles			NO for AB YES for BC
8.9 Volume with Disc Method: Revolving Around the x- or y-Axis			NO for AB YES for BC
8.10 Volume with Disc Method: Revolving Around Other Areas			NO for AB YES for BC
8.11 Volume with Washer Method: Revolving Around the x- or y-Axis			NO for AB YES for BC
8.12 Volume with Washer Method: Revolving Around Other Areas			NO for AB YES for BC
8.13 The Arc Length of a Smooth, Planar Curve and Distance Traveled		BC	NO for AB YES for BC
Unit 9: Parametric Equations, Polar Coordinates, and Vector-valued Functions	**BC F**	**BC**	**NO for BC**
9.1 Defining and Differentiating Parametric Equations		BC	NO for BC
9.2 Second Derivatives of Parametric Equations		BC	NO for BC

9.3 Finding Arc Lengths of Curves Given by Parametric Equations	BC	NO for BC
9.4 Defining and Differentiating Vector-Values Functions	BC	NO for BC
9.5 Integrating Vector-Values Functions	BC	NO for BC
9.6 Solving Motion Problems Using Parametric and Vector-Valued Functions	BC	NO for BC
9.7 Defining Polar Coordinates and Differentiating in Polar Form	BC	NO for BC
9.8 Find the Area of a Polar Region or the Area Bounded by a Single Polar Curve	BC	NO for BC
9.9 Finding the Area of the Region Bounded by Two Polar Curves	BC	NO for BC
Unit 10: Inifinite Sequences and Series **BC H**	**BC**	**YES for particular parts**
10.1 Defining Convergent and Divergent Infinite Series	BC	NO for BC
10.2 Working with Geometric Series	BC	YES for BC
10.3 The *n*th Term Test for Divergence	BC	NO for BC
10.4 Integral Test for Convergence	BC	NO for BC
10.5 Harmonic Series and *p*-Series	BC	YES for BC
10.6 Comparison Tests for Convergence	BC	NO for BC
10.7Alternating Series Test for Convergence	BC	YES for BC
10.8 Ratio Test for Convergence	BC	YES for BC
10.9 Determining Absolute or Conditional Convergence	BC	NO for BC
10.10 Alternating Series Error Bound	BC	NO for BC
10.11Finding Taylor Polynomial Approximations of Functions	BC	YES for BC
10.12 Lagrange Error Bound	BC	NO for BC
10.13 Radius and Interval of Convergence of Power Series	BC	NO for BC
10.14 Finding Taylor of Maclaurin Series for a Function	BC	NO for BC
10.15 Representing Functions as Power Series	BC	NO for BC

ABers: Section E and R are HUGE for you – spend time there. My plan will give you a routine for study/review.
BCers: The series section lost some important topics that you will need for the future, and the exclusion of parametric/polar is also important for your future. So, give a sigh of relief now but hold on to these facts. Go through both R sections and my plan in practicing SA.

Hope this helps you prepare. Keep well and in touch. Miss you,

Burns