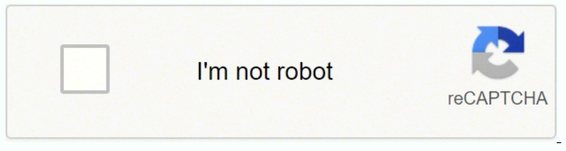

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Ap calculus ab and bc pdf online

Name _____ Version A

AP Calculus **Second Semester Final** **BC Calculus**

Multiple Choice
Identify the choice that best completes the statement or answers the question.
To mark answers: use ***All*** *for answer F.*

NO CALCULATOR SECTION

___ 1) Write the first three terms of the Maclaurin series for $\frac{3x^3}{1+3x^2}$

A) $3x^3 - 9x^5 - 27x^9$ C) $-3x^3 + 9x^5 - 27x^9$ E) $3x^3 - 9x^5 + 27x^9$
B) $-3x^3 - 9x^5 - 27x^9$ D) $3x^3 + 9x^5 + 27x^9$

___ 2) Find the exact value of $\sum_{n=3}^{\infty} \frac{4}{(n-4)(n-5)}$

A) 3 B) $\frac{4}{3}$ C) $\frac{3}{5}$ D) $\frac{13}{3}$

___ 3) Which of the following can be used to find an approximation for e^3, using the *2nd* order *Maclaurin series for* e^x

A) $1+3+\frac{9}{2}+\frac{27}{6}$ C) $1-3+\frac{9}{2}-\frac{27}{6}$ E) $4+\frac{9}{2}+\frac{27}{6}+\frac{81}{24}$
B) $1+3+\frac{9}{2}+\frac{27}{8}$ D) $1-3+\frac{9}{2}-\frac{27}{8}$ F) $3+\frac{9}{2}+\frac{27}{6}+\frac{81}{24}$

___ 4) Which of the following series converge?

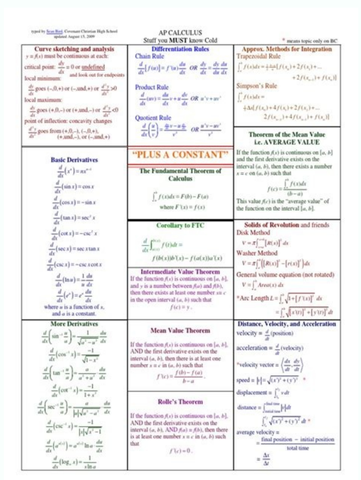
I. $\sum_{n=3}^{\infty} \frac{5^n}{n!}$ II. $\sum_{n=1}^{\infty} \frac{\sin n}{n^2}$ III. $\sum_{n=1}^{\infty} \left[-\frac{4}{10}\right]^n$

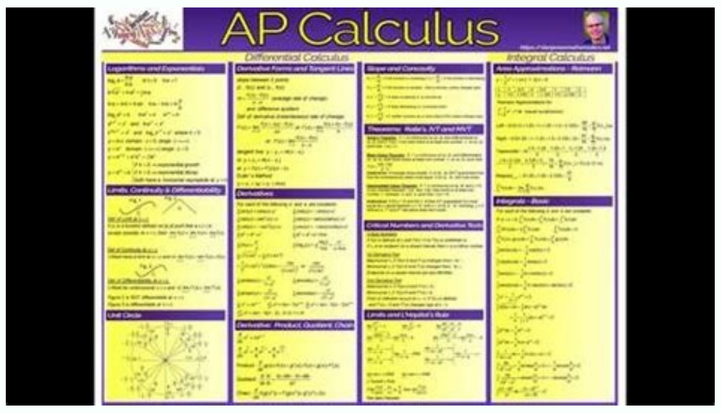
A) III only C) I & II E) none of the three
B) III only D) I only F) all three

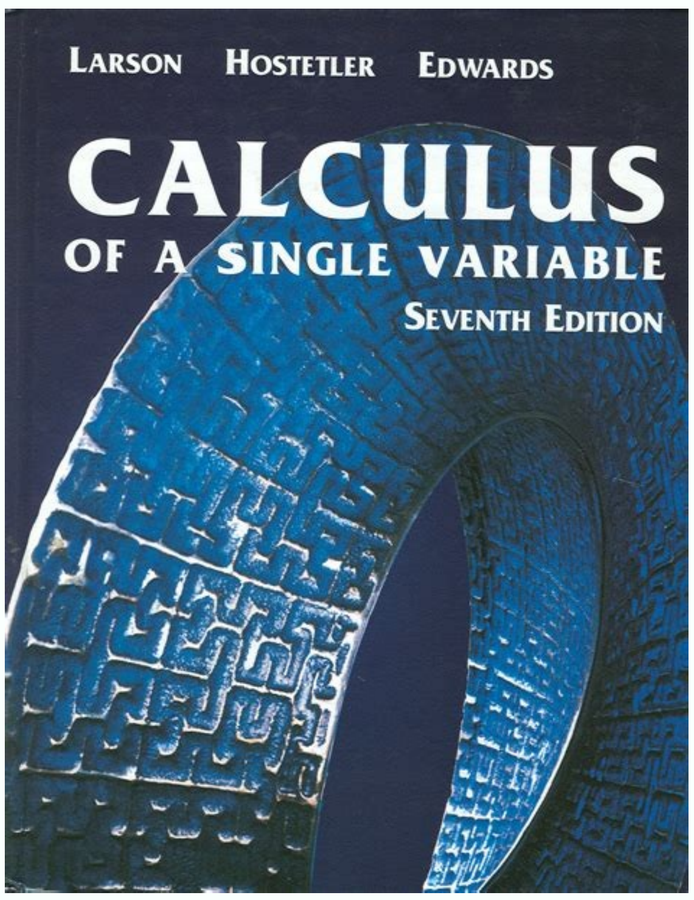
___ 5) Which of the following series converge *conditionally*?

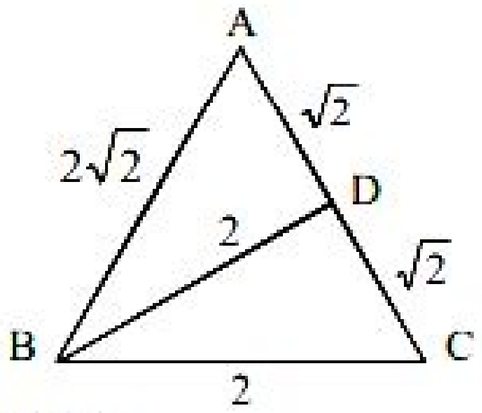
I. $\sum_{n=1}^{\infty} (-1)^n \frac{n+4}{n^2}$ II. $\sum_{n=1}^{\infty} (-1)^n \frac{5^n}{n!}$ III. $\sum_{n=1}^{\infty} \frac{(-1)^{n+1} n^2}{n^3+4}$

A) none of the three C) III only E) II & III
B) I & II D) I only F) all three









We know

$AB^2 + BC^2 = 2\,(CD^2 + BD^2)$

$$AB^2 + 4 = 2\left(\frac{AB^2}{4} + 4\right)$$

$$AB^2 + 4 = \frac{AB^2}{2} + 8$$

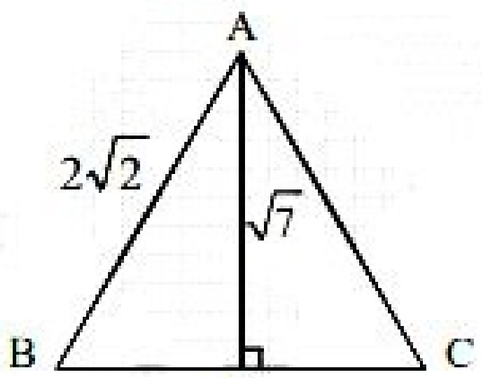
$$\frac{AB^2}{2} = 4$$

$AB^2 = 8$

$AB = 2\sqrt{2}$

Now

Area $= \frac{1}{2} \times 2 \times \sqrt{7} = \sqrt{7}$ square unit.



It also helped me to develop a wide foundation on which I was building during my studies at the University of Aberdeen, where are continued my studies of mathematics later on. Calculus je důležitým a nezbytným nástrojem nejen pro matematiky. Jana Kalová, PhD., instruktorka CTM Online kurzů Calculus is an important and essential tool not just for mathematicians. The courses feature a multi-representational approach to calculus, with concepts, results, and problems expressed graphically, numerically, analytically, and verbally. Student se tak seznámí s tématy diferenciální rovnice, nekonečné řady a jejich konvergence, nevlastní integrál nebo polární souřadnice. Students will be introduced to the AP exam concept and they will practice relevant types of questions. Begin studying for the AP® Calculus AB or BC test by examining limits and continuity. Begin with Riemann sum approximations and end with integrating various functions with intentional techniques.Learn to set up and solve separable differential equations. These functions include linear, polynomial, rational, exponential, logarithmic, trigonometric, inverse trigonometric and piecewise-defined functions. The AP Calculus BC course is also a preparation for an AP exam. Calculus is therefore truly the foundation for developing other, not only mathematical disciplines. Calculus je tak skutečně základním stavebním kamenem pro vybudování dalších, nejen matematických disciplín. Study materials (e-books, Discovery Education, etc. Finally, apply reasoning skills to justify solutions for optimization problems.Explore the relationship between integration and differentiation as summarized by the Fundamental Theorem of Calculus. Byla mojí instruktorkou – pomáhala mi pochopit, co jsem nepobíral, pomáhala mi pravidelně na kurzech pracovat a často mi i psala různé zajímavosti navíc, díky čemuž jsem poznal, že skvělí, milí a nápomocní matematici jsou všude po světě. Během studia těchto kurzů jsem začal mít matematiku skutečně rád. Explore slope fields to understand the infinite general solutions to a differential equation. Bez porozumění funkcím a jejich vlastnostem, diferenciálnímu a integrálnímu počtu se jen těžko studuje také fyzika, některé části chemie, ekonomie, ale také třeba biologie. AP Calculus AB and AP Calculus BC focus on students' understanding of calculus concepts and provide experience with methods and applications. V našem kurzu provedeme studenta světem funkcí a jejich vlastností, limitami, derivacemi i jejich aplikacemi. Students who take AP Calculus BC should have basic familiarity with sequences and series, as well as some exposure to parametric and polar equations. AP Calculus BC is designed to be the equivalent to both first and second semester college calculus courses. Během svého středoškolského studia jsem měl přístup k mnoha zdrojům vzdělání - absolvoval jsem různé stáže, psal SOČku, učil se pečlivě do některých předmětů - a všechny byly přínosné, ale CTM Online kurzy rozhodně nejpřínosnější! Doporučil bych je každému a kdykoli! --- Thanks to the CTM Online programme, I had the opportunity to study online Maths courses, made by the CTY Johns Hopkins University, while I was still at the Bishop Grammar School in Žďár nad Sázavou. Students should also know how the sine and cosine functions are defined from the unit circle and know the values of the trigonometric functions at the numbers 0, π/6, π/4, π/3, π/2, and their multiples. Learning to recognize when functions are embedded in other functions is critical for all future units.Connect previous learnings about rates of change to scenarios in the real world, including motion and related rates. V kurzu jsou obsažena témata, která se běžně nevyučují na našich středních školách. Make sure to include this essential section in your AP® Calculus AB practice!Apply the chain rule to find derivates of composite functions and extend that understanding to the differentiation of implicit and inverse functions. Students will therefore encounter topics such as differential equations, infinite series and their convergence, improper integrals or polar co-ordinates. ...) for FLVS Global courses are INCLUDED in the price of the course. Studenti se seznámí s konceptem AP exam a nacvičí si typové úlohy. Hai there.....I'm Malathi Ramachandran hold more than Fifteen years of total experience in handling curricula across the globe includes US, Canada, France, Spain, Sweden, Indonesia, Saudi Arabia, Thailand, UAE, Oman, UK, West Africa (Accra),Singapore, Malaysia, china, Hong Kong, Qatar, Bahrain, Russia, Australia, New Zealand, Netherlands,... Kurz AP Calculus BC je přípravou na AP Exam. Through the use of big ideas of calculus (e.g., modeling change, approximation and limits, and analysis of functions), each course becomes a cohesive whole, rather than a collection of unrelated topics. Velice důležitou součástí této mé zkušenosti byla paní profesorka Jana Kalová. Investigate geometric applications of integration including areas, volumes, and lengths (BC) defined by the graphs of functions.Specifically for the AP® Calculus BC exam, this unit builds an understanding of straight-line motion to solve problems in which particles are moving along curves in the plane. A snad právě díky němu jsem začal mít matematiku opravdu rád a posléze ji i začal studovat na vysoké škole. Ukázal mi, že je to svět zábavy, svět hledání pravdy, svět, kde všechno dává smysl. Profesor Edward Burger, který připravoval videa do těchto kurzů, je jedním z nejlepších učitelů matematiky v USA. Without understanding of functions and their properties, derivatives and integrals, it is very difficult to conduct further studies in Physics, certain parts of Chemistry, Economy or even Biology. I started with the Honors Pre-Calculus course and then continued by AP Caculus BC. Ve třeťáku jsem pak pokračoval kurzem AP Calculus BC, který mi dal velmi solidní základy diferenciálního a integrálního počtu, na kterých jsem mohl s přehledem stavět při studiu na University of Aberdeen, na níž jsem ve studiu matematiky pokračoval. But it was not just professor Burger who showed my what a joy doing maths is. In particular, before studying calculus, students must be familiar with the properties of functions, the composition of functions, the algebra of functions, and the graphs of functions. RECOMMENDED PREREQUISITES Before studying calculus, all students should complete the equivalent of four years of secondary mathematics designed for college-bound students: courses that should prepare them with a strong foundation in reasoning with algebraic symbols and working with algebraic structures. Close this unit by analyzing asymptotes and discontinuities.Extend knowledge of limits by exploring average rates of change over increasingly small intervals. These courses taught me what is the mathematical thinking and how to think about maths problems. In AP Calculus BC, the concepts of integration and differentiation were amazingly explained by professor Edward Burger, one of the best teachers of mathematics in the USA. Both courses require students to use definitions and theorems to build arguments and justify conclusions. Professor Jana Kalova, my supervisor in this programme, was helping me to understand what I was not able to grasp yet, to help me keep pace with the course tempo and to motivate me when I felt it is too much work for me. Internalize procedures for basic differentiation in preparation for more complex functions later in the course. Understand derivates as a tool for determining instantaneous rates of change of one variable with respect to another. Limits help us understand the behavior of functions as they approach specific points or even infinity. Teachers and students should regularly use technology to reinforce relationships among functions, to confirm written work, to implement experimentation, and to assist in interpreting results. If you're behind a web filter, please make sure that the domains *.kastatic.org and *.kasandbox.org are unblocked. Daniel Mužátko, student CTM, nyní student University of Aberdeen Write and solve equations that model exponential growth and decay, as well as logistic growth (BC).Extend work with integrals to find a function's average value, model particle motion, and calculate net change. Practice working with Taylor and Maclaurin series and utilize power series to reach an approximation of given functions. In this course we will guide the student through the world of functions and their properties, limits, derivatives and their applications. Consider different representations of series to grow intuition and conceptual understanding. AP Calculus BC is an extension of AP Calculus AB, and each course is challenging and demanding and requires a similar depth of understanding of topics. AP Calculus BC applies the content and skills learned in AP Calculus AB to parametrically defined curves, polar curves, and vector-valued functions; develops additional integration techniques and applications; and introduces the topics of sequences and series. During my high school studies, I was using many sources to learn maths – I was taking part in internships, reading books, watching interesting videos on YouTube – but nothing was as beneficial as doing these CTM Online courses. If you're seeing this message, it means we're having trouble loading external resources on our website. Naši absolventi jsou na tuto náročnou zkoušku výborně připraveni. Find critical points and extrema of functions, as well as describe concavity and if a function increases or decreases over certain intervals. Understand polar equations as special cases of parametric equations and reinforce past learnings to analyze more complex graphs, lengths, and areas.In this final topic specifically for the AP® Calculus BC exam, see how a sum of infinite terms might actually converge on a finite value. Prospective calculus students should take courses in which they study algebra, geometry, trigonometry, analytic geometry, and elementary functions. I am eternally grateful to everyone who gave me this opportunity and I would recommend this courses to anyone anytime. Jana Kalová, PhD., CTM Online instructor Struktura kurzuStudy Scope and Sequence AP Calculus BC Course and Exam Content The course content is organized into ten commonly taught units, which have been arranged in the following suggested, logical sequence: ■ Unit 1: Limits and Continuity ■ Unit 2: Differentiation: Definition and Fundamental Properties ■ Unit 3: Differentiation: Composite, Implicit, and Inverse Functions ■ Unit 4: Contextual Applications of Differentiation ■ Unit 5: Analytical Applications of Differentiation ■ Unit 6: Integration and Accumulation of Change ■ Unit 7: Differential Equations ■ Unit 8: Applications of Integration ■ Unit 9: Parametric Equations, Polar Coordinates, and Vector-Valued Functions ■ Unit 10: Infinite Sequences and Series Sylabus kurzuMateriályK vašemu kurzu potřebujete tyto učebnice a studijní pomůcky (pokud ke kurzu potřebujete laboratorní sadu, zkuste si nejdříve dohodnout možnost využívání školní laboratoře):DescriptionNumberTypeSourceGraphing CalculatorToolNOT included in the price of the courseStudy ForgeSoftwareincluded in the price of the courseCenacena kurzu: 17 500,- Kč / 735,- EURZkušenosti studentůDíky CTM Online programu jsem měl možnost během středoškolského studia absolvovat online kurzy matematiky zaštítěné CTY při univerzitě Johnse Hopkinse v USA. It is equivalent to at least one year of calculus at most colleges and universities. Analyze various representations of functions and form the conceptual foundation of all calculus: limits. The course also contains topics, which are not commonly parts of the Czech high school curriculum. Students must also understand the language of functions (domain and range, odd and even, periodic, symmetry, zeros, intercepts, and descriptors such as increasing and decreasing). RNDr. Ing. AP Calculus BC includes all topics in AP Calculus AB, as well as additional topics, such as differential and integral calculus (including parametric, polar, and vector functions) and series. A sustained emphasis on clear communication of methods, reasoning, justifications, and conclusions is essential. Describe planar motion and solve motion problems by defining parametric equations and vector-valued functions. Ve druháku jsem začal kurzem Honors Pre-Calculus, kde jsem se naučil myslet matematicky a hledat za každým vzorcem jeho původ a pravý význam. Analytically determine answers by reasoning with definitions and theorems. Our alumni will become thoroughly prepared for this challenging examination. Approximate values and limits of certain functions and analyze how the estimation compares to the intended value.Conclude your study of differentiation by diving into abstract structures and formal conclusions. Understand integration (antidifferentiation) as determining the accumulation of change over an interval just as differentiation determines instantaneous change at a point. Exploring connections among these representations builds understanding of how calculus applies limits to develop important ideas, definitions, formulas, and theorems.

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