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| Block/  semester | Pacing Guide/Scope and Sequence for AP Calculus AB  *Single-variable Calculus*, Bradley and Smith, Prentice Hall |
| Week 1 | 1.4: Domain/range of functions to include rational, polynomial, square root, trigonometric and piecewise. Evaluate the difference quotient. Determine if a function is even or odd. Find composite functions. Decompose a composite function. Review transformations of parent functions.  1.5: Estimate limits of a function by analyzing graph and/or using table of values.  1.6: Evaluate limits using algebra. |
| Week 2 | 1.6: Evaluate limits using algebra to include piecewise functions.  1.7: Determine if a function is continuous at a given value or on a prescribed interval. Identify the type of discontinuity. Know and apply the Intermediate Value Theorem. Know and apply the root location theorem. |
| Week 3 | 1.8: Formal definition of a limit with geometrical reference. Epsilon-delta proofs  2.1: Introduction of derivative as slope of tangent. Existence of a derivative. Relate continuity and differentiability.  2.2: Employ techniques of differentiation. |
| Week 4 | 2.3: Special trigonometric limits. Find derivatives of trig functions  2.4: Rates of change ( position, velocity, acceleration) |
| Week 5 | 2.5: Chain rule for differentiation.  2.6: Implicit differentiation. |
| Week 6 | 2.7: Related Rates problems.  2.8: Linearization of a function. Incremental approximation formula. Differentials. Error propagation. Marginal analysis (economics) |
| Week 7 | 2.9: Newton-Raphson method for finding roots  3.1: Extreme Value theorem. Finding relative and absolute extrema.  3.2: The Mean Value Theorem. Rolle’s Theorem.  3.3: First derivative test, increasing/decreasing on intervals and curve sketching.  3.4: Second derivative test, concavity, points of inflection and curve sketching. |
| Week 8 | 3.5: Asymptotal behavior.  3.6: Summary of curve sketching.  3.7: Optimization (physics, engineering, economics) |
| Week 9 | Semester 1 Review  Semester 1 Exam |
| Week 10 | 3.9: L’Hopital’s rule for determining limits of rational functions  4.1: Area as the limit of a sum. Summation notation and formulas |
| Week 11 | 4.2: Riemann Sums and properties of the definite integral  3.10: Antidifferentiation formulas  4.3: Fundamental Theorem of Calculus. Integration using u-substitution |
| Week 12 | 4.3: Integration using u-substitution with definite integral  4.4: Introduction to separable differential equations. Determine flow of fluid through orifice.  4.5: Know and apply the Mean Value Theorem for integrals. Know and apply the average value theorem. |
| Week 13 | 4.6: Trapezoidal rule and Simpson’s rule (time permitting)  5.2: Exponential/logarithmic functions and properties. Derivative of an inverse.  5.3: Derivatives of involving e and ln x. |
| Week 14 | 5.3: Logarithmic differentiation  5.4: L’Hopital’s rule with exponential and logarithmic functions. Applications of optimization and marginal analysis. |
| Week 15 | 5.5: Integration of exponentials and logarithms with u-substitution  5.6: Derivative and integrals of the inverse trig functions |
| Week 16 | 7.1: Integration with u-substitution and use of integration tables  7.2: Integration by parts  7.3: Decomposition and integration by partial-fraction decomposition(time permitting) |
| Week 17 | 4.7: Area between curves  6.1: Volumes of revolution using disk and washer method. Volumes using shell method if time permits. |
| Week 18 | Semester 2 review  Semester 2 final |

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*Mr. Pennell*

*Prentice Hall Single-Variable Calculus*

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| Block/  semester | Syllabus for AP Calculus AB  *Single-variable Calculus*, Bradley and Smith, Prentice Hall |
| Week 1 | 1.4: 1-16, 24-45, 54, 57, 60, pp. 39-40  1.5: 1-15, 17-58, pp. 47-48  Test on 1.4-1.5  1.6:1-30, p. 54 |
| Week 2 | 1.6: 34-59, ,p. 55  Test on 1.6  1.7: 7-34, 39-43, pp. 66-67 |
| Week 3 | 1.8: 7-10, p. 74  2.1: 12-16, 24-26, p. 93  2.2: 5-23, 27,29, 31, 33-39, pp. 102-103 |
| Week 4 | 2.3: 1-38, pp. 110-111  Test 1.7-2.3  2.4: 15-18, 27-33, p. 118 |
| Week 5 | 2.5: 12-38, p. 127  2.6: 1-14, 19-22, p. 134  Test on 2.4-2.6 |
| Week 6 | 2.7: 18-19, 22-33, 35-44, pp. 142-143  Test on 2.7  2.8:1-10, 15-30, 37, 43, 44-47, pp. 152-153  Test |
| Week 7 | 2.9: 12-17, p. 159  3.1: Odds 15-27, 44-49, pp. 175-176  3.2: 3-23, 36, pp. 181-182  3.3: 13,18, 25, 27, p. 190-191.  3.4: 11-12, 23-24, p. 201 |
| Week 8 | 3.5: 1-35, p. 211  3.6: 12-14, p. 219  Test on 2.9-3.6  3.7: 3-5, 9,17-20, p. 227  Test 3.7 |
| Week 9 | Semester1 Review  Semester Exam |
| Week 10 | 3.9: 3-37, p. 245  Test on 3.9  4.1: 1-12, 15-24, p. 264-265 |
| Week 11 | 4.2: 2,6,13-18, 21-23, p. 275  3.10: 1-22, p. 251  4.3: 1-22, p. 285 |
| Week 12 | 4.3: 23-41, 61, 62, pp. 285-286  Test 3.10-4.3  4.4: 1-16, 34, 35, 36-37, 40-41, pp. 293-294.  4.5: 1-16, 19-28, 31-34, pp. 301-302  Test 4.4-4.5 |
| Week 13 | 4.6: 1-5, p. 308  5.2: 13-22, 34, 49, 52-54, pp. 343-344  5.3: 1-32, p. 350 |
| Week 14 | 5.3: 36-56, p. 350  5.4: 28-37, 42-44, p. 357.  Test on 4.6 to 5.4 |
| Week 15 | 5.5: 1-42, p. 362  Test on 5.5  5.6: 3-54, 64-65, pp. 372-373  Test on 5.6 |
| Week 16 | 7.1: 1-24, pp. 446-447  7.2: 1-20, p. 453  7.3: 1-18, pp. 463-464  Test 7.1-7.3 |
| Week 17 | 4.7: 1-11, 14, 15, 19, p. 317  6.1: 13-20, 29-34, 39-43, 47-49, p. 394  Test 4.7 and 6.1 |
| Week 18 | Semester review  Semester final |