BC Calculus, Learning Log Name _____

**WDYLT** Part of each assignment in Calculus is your response to these 3 questions:

1. **What did you learn today that was new?** 2. **How does what you learned relate to what you previously knew?** 3. **What good is this new idea?**

You may answer these questions at any time during your assignment, but your responses should always appear as questions a, b, and c at the beginning of each assignment. Your responses will count as 1/5 of your score for each assignment.

| CH. 3 | Big Idea: Rates of Change are Derivatives. | | Enduring Understanding: There are rules I can use to find derivatives of most functions. | | Enduring Question: How can I tell how fast things are changing? |
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| Day | Title | Concept | LEARNING TARGETS (What I should understand, know, and be able to do.) | How am I doing?<br>A= I knew how and got it right<br>B= I knew how, but small error<br>C= I had no idea/guessed right<br>D= I had no idea/guessed wrong | Assessments/Learning Activities |
| 12 | 3.1 | Introduction to Derivatives | a. I understand that derivatives are instantaneous rates of change. | | ❒ WDYLT?<br>❒ 3.1: 3, 5, 13, 14, 21, 20, 25<br>❒ Review 2: 6, 10, 25<br>❒ 2.4: 18<br>❒ 2.1: 26<br>❒ 1.2: 64<br>❒ Review 1: 38<br>❒ 2.2: 42 |
| | | | b. I can recognize and use derivative notation. | | |
| | | | c. I can calculate derivatives using their instantaneous rate of change formula. | | |
| | | | d. I understand that the derivative gives the slope of a curve. | | |
| 13 | 3.2 | Differentiability | a. I understand what makes a function differentiable. | | ❒ WDYLT?<br>❒ 3.2: 1-11 odds, 15, 17, 24, 31, 37<br>❒ 3.1: 7, 16, 29<br>❒ Review 2: 44<br>❒ 1.1: 51<br>❒ Review 1: 38<br>❒ 2.1: 50<br>❒ 2.3: 13, |
| | | | b. I can determine when functions are differentiable. | | |
| | | | c. I can calculate derivatives using the symmetric difference quotient. | | |
| Quiz 6 | | Score: ___<br>Possible: ___ | What do I need help with? | What's my plan? | What did I do to improve? |
| 14 | 3.3 | Rules for Differentiation | a. I can compute derivatives ($1^{st}$, $2^{nd}$, $3^{rd}$, etc.) using the sum/difference, product rule, and quotient rules. | | ❒ WDYLT?<br>❒ 3.3: 5, 9, 13, 17, 23, , 27, 35, 48, 44<br>❒ 3.2: 4, 8, 30<br>❒ 3.1: 31<br>❒ 1.2: 61<br>❒ 2.2: 60<br>❒ 2.3: 49<br>❒ 2.4: 6 |

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| 15 | 3.4 | Applications of Derivatives | a. I understand that velocity, acceleration, and jerk can be determined using derivatives.<br>b. I can use derivatives in a variety of circumstances to measure rates of change. | | ❒ WDYLT?<br>❒ 3.4: 1, 4, 8, 9, 12, 14, 18, 20, 28<br>❒ 3.3: 19, 24, 41<br>❒ 3.2: 48<br>❒ 1.4: 56<br>❒ 2.4: 6, 16<br>❒ 3.1: 24 |
| Quiz 7 | | Score: ___<br>Possible: ___ | What do I need help with? | What's my plan? | What did I do to improve? |
| 16 | 3.5 | Derivatives of Trigonometric Functions | a. I understand where the rules for finding derivatives of trig functions come from.<br>b. I can find derivatives of trig functions. | | ❒ WDYLT?<br>❒ 3.5: 3, 6, 9, 15, 22, 25, 31<br>❒ 3.4: 13, 22<br>❒ 3.2: 13, 27, 31, 32<br>❒ 1.5: 52<br>❒ Review 2: 28<br>❒ 3.1: 17<br>❒ 3.3: 56 |
| Quiz 8 | | Score: ___<br>Possible: ___ | What do I need help with? | What's my plan? | What did I do to improve? |
| Review 3, Part 1 | | | What do I need help with? | | ❒ WDYLT?<br>❒ Use <u>both</u> definitions of a derivative as a limit to find f '(x) for $f(x) = 3x^2 + 2x$ at $x = 2$.<br>❒ What are the four reasons that a function may not be differentiable at a point?<br>❒ Review 3: 2, 3, 4, 7, 50, 57, 50, 71<br>❒ 3.5: 5, 16, 32<br>❒ 3.4: 27, 37<br>❒ 1.1: 52<br>❒ 1.3: 32<br>❒ Review 2: 39<br>❒ 3.3: 42 |
| 17 | Test 3 | Score: ___<br>Possible: ___ | What do I need help with? | How will I improve? | What did I do to improve? |

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| 18 | 3.6 | Chain Rule of Differentiation | a. I understand that the chain rule is required in finding derivatives of composite functions. | | ❒ WDYLT?<br>❒ 3.6: 3, 4, 16, 17, 35, 39, 41, 43, 47, 53, 56<br>❒ Review 3: 1, 43, 72<br>❒ 3.5: 26<br>❒ 1.2: 64<br>❒ Review 2: 34<br>❒ 3.2: 35<br>❒ 3.5: 44 |
| | | | b. I can use the chain rule to find derivatives of composite functions. | | |
| 19 | 3.7 | Implicit Differentiation | a. I understand when implicit differentiation is necessary. | | ❒ WDYLT?<br>❒ 3.7: 1, 8, 11, 17, 30, 39, 43<br>❒ 3.6: 2, 7, 43, 58<br>❒ Review 3: 81<br>❒ 3.2: 10<br>❒ 3.4: 21, 31<br>❒ 3.5: 4, 28 |
| | | | b. I can find derivatives using implicit differentiation. | | |
| Quiz 9 | | Score: ___<br>Possible: ___ | What do I need help with? | What's my plan? | What did I do to improve? |
| 20 | 3.8 | Derivatives of Inverse Functions | a. I know how the formulas for derivatives of inverse functions are obtained. | | ❒ WDYLT?<br>❒ 3.8: 3, 7, 9, 19, 25, 28, 31<br>❒ 3.7: 3, 22, 54<br>❒ 3.6: 48, 61<br>❒ Derivative of Inverse Functions |
| | | | b. I can find the derivatives of inverse functions. | | |
| 21 | 3.9 | Derivatives of Exponential and Logarithmic Functions | a. I understand why base *e* is used as the natural exponential and logarithmic base. | | ❒ WDYLT?<br>❒ 3.9: 4, 9, 13, 17, 21, 30, 35, 38, 51, 56<br>❒ 3.8: 2, 8, 29<br>❒ 3.7: 24<br>❒ 2.4: 33<br>❒ 3.4: 25, 38<br>❒ Review 3: 64 |
| | | | b. I can find derivatives of exponential and logarithmic functions. | | |
| Quiz 10 | | Score: ___<br>Possible: ___ | What do I need help with? | What's my plan? | What did I do to improve? |
| Review 3, Part 2 | | | What do I need help with? | | ❒ Review 3: 5, 11, 17, 23, 26, 35, 48, 66<br>❒ 3.9: 7, 16, 42<br>❒ 3.8: 21<br>❒ 2.1: 51<br>❒ 3.2: 55<br>❒ 3.4: 46<br>❒ 3.6: 8, 50 |

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| 22 | Test 4 | Score: ___<br>Possible: ___ | What do I need help with? | What's my plan? | What did I do to improve? |