

**MCV 4U Learning Goals and Success Criteria
Chapters 2 & 5: Derivatives of Functions**

Learning Goals	
<p>I will be able to:</p> <ul style="list-style-type: none"> Graph the derivatives of polynomial, sinusoidal, and exponential functions, and make connections between the representations of a function and its derivative. (RC2) Prove the rules for determining derivatives, and apply these rules to polynomial, sinusoidal, exponential, rational, and radical functions to solve problems. (RC3) 	
Success Criteria	
<p>I can:</p> <ul style="list-style-type: none"> Generate a table of values of instantaneous rate of change of a function (polynomial, sinusoidal, exponential, etc.) and then recognize that the graph produced represents the derivative of the function. Prove the power, product, and chain rules for a function of the form $f(x) = x^n$ graphically and algebraically. Understand the proof of the constant, constant multiple, sum and difference rules graphically and algebraically. Apply rules accurately the determine the derivative of a variety of functions, and solve problems involving these derivatives. 	
Quest Information:	
<p>Your test is Thursday, March 12th. Unless you are entitled to extra time, none will be available. This test must be completed before March Break, so please make arrangements ahead of time to write on Wednesday if you will not be here on Thursday.</p>	
<p>There is a more detailed outline below. These are the types of questions you can expect. To prepare well for this test, you should (in this order):</p> <ul style="list-style-type: none"> Review your notes and makes study notes. We learned new vocabulary, so be sure that you actually understand it! Review/redo your quizzes and go through the examples in the notes and be sure that you can do them yourself. TAKE YOUR TIME AND DO ALL OF THE PARTS OF THE DERIVATIVES!!! Complete questions in the suggested review that you think you need to do. The text book should be your last stop, not your first! 	
Questions to Expect	<ul style="list-style-type: none"> Find the derivative of a function from first principles, then graph the function and its derivative. Short answer question about differentiability, notation, etc. One proof from 2.2 (constant multiple, sum, difference) Use the product rule to prove the quotient rule. Short answer question about the properties of derivatives of trig functions. Use the quotient rule to determine the derivative of the tangent function. Use derivative rules to differentiate expressions (several of these). Use Leibniz notation to differentiate in terms of u and x. Find an equation of a tangent line at a given point.
Text book Questions:	<p>p. 110 #1 – 5, 7 – 11, 17 – 20, 24, 28, 30 p. 114 #1 – 8</p> <p>p. 263 #3abcdef, 9, 10, 15bcdef, 16 p. 266 #1def</p> <p>Skip any parts that have a variable in the exponent.</p>