**UNIT 2: Derivatives**

**Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ PER \_\_\_\_\_\_\_\_\_\_\_ DATE \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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| **LT** | **Description** | **Standard** |  |  |  |  | **NEXT STEPS** |
| *2A* | I can recall the **definition of the derivative** and use it to explain the connection between **limits**, **slope** of a curve at a point, and **instantaneous versus average** rates of change. | **4.1** |  |  |  |  |  |
| *2B* | I can apply the **concept of derivative** to a given set of data to determine instantaneous and average rates of change | **4.2a** |  |  |  |  |  |
| *2C* | I can prove the **power rule**, **product rule**, and **quotient rule** and explain how to use the rules to find a variety of derivatives. I can justify why it is convenient to recall certain derivatives and derive other derivatives | **4.0** |  |  |  |  |  |
| *2D* | I can find slopes and **equations of a tangent/normal line** at a given point using the derivative | **4.1** |  |  |  |  |  |
| *2E* | I can use the definition of derivative to prove the formulas for the derivatives of basic **trigonometric functions** and use these formulas to evaluate the derivatives of functions involving the trigonometric functions. | **4.10** |  |  |  |  |  |
| *2F* | I can derive the **chain rule.** | **5.0** |  |  |  |  |  |
| *2G* | I can explain how to calculate the derivatives of a variety of composite functions using the **chain rule**. | **5.0** |  |  |  |  |  |

**UNIT 2: Derivatives (PART TWO)**

**Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ PER \_\_\_\_\_\_\_\_\_\_\_ DATE \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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| **LT** | **Description** | **Standard** |  |  |  |  | **NEXT STEPS** |
| *2H* | I can use higher order derivatives to analyze and describe **horizontal motion**. | **4.2b** |  |  |  |  |  |
| *2I* | I can justify why **logarithmic differentiation** is the preferred approach to differentiating a function. | **4.10** |  |  |  |  |  |
| *2J* | I can find the derivatives of **exponential** and **logarithmic** functions. | **4.10** |  |  |  |  |  |
| *2K* | I know **L'Hôpital's rule** and I am able to apply it to calculate limits **of indeterminate form**. | **8.3** |  |  |  |  |  |
| *2L* | I can explain the relationship between **differentiability and continuity**, and justify when a function is not differentiable | **4.3** |  |  |  |  |  |
| *2M* | I can explain when it is necessary to differentiate implicitly and use **implicit differentiation** in a wide variety of applied problems in physics, chemistry, and economics. | **4.11** |  |  |  |  |  |
| *2N* | I can explain how to find the derivative of an **inverse function**, including **inverse trigonometric** functions. | **4.10** |  |  |  |  |  |