



WEEKLY LESSON PLAN: Week 4/5

TEACHER: Adam Khan **COURSE:** Calculus 1 **DATES:** 08/28 – 09/07

Learning Focus – Derivatives

<p>Monday 08/28 Topic: Derivatives</p>	<ol style="list-style-type: none"> The students will be able to use the definition of a derivative and define its relationship to the tangent line. <u>Terms</u> – Tangent line, derivative <u>Engage and connect</u> – Slope of a line through two points <u>Guided instruction</u> – <ul style="list-style-type: none"> Formal definition of a derivative as a Limit of secant lines. Sketch a curve and secant lines to reinforce the idea of a limit of those secant lines becoming a tangent line. Find the slope of a curve at a given point. Find the limit of the difference quotient. <u>Practice:</u> throughout the lesson <u>Check for understanding</u> – Student discussion and responses to questions <u>Assignment</u>
<p>Tuesday 08/29 Topic: Derivatives as a limit</p>	<ol style="list-style-type: none"> The students will practice using the difference quotient <u>Terms</u> – difference quotient <u>Engage and connect</u> <ul style="list-style-type: none"> Warm up – Definition of continuity <u>Guided instruction</u> – <ul style="list-style-type: none"> Review key algebra skills that are important in evaluating the difference quotient. Use Pascal's triangle to quickly expand a binomial. <u>Guided practice</u> – throughout the lesson <u>Check for understanding</u> – Student discussion and responses to questions <u>Assignment</u>
<p>Wednesday 08/30 Topic: Derivatives</p>	<ol style="list-style-type: none"> Students will be able to identify and list basic derivative rules. <u>Engage and connect</u> Warm up – Use IVT <u>Guided instruction</u> – <ul style="list-style-type: none"> Basic rules of derivatives <ul style="list-style-type: none"> the constant rule Power rule Constant multiple rule derivatives of Sine and Cosine <u>Practice</u> – Throughout the lesson <u>Check for understanding</u> – Student discussion and responses to questions <u>Assignment</u>

<p>Thursday 08/31 Topic: Derivatives</p>	<ol style="list-style-type: none"> 1. Students will practice using basic derivative rules. 2. <u>Engage and connect</u> Warm up – Use difference quotient 3. <u>Guided instruction</u> – <ul style="list-style-type: none"> • Basic rules of derivatives <ul style="list-style-type: none"> ○ the constant rule ○ Power rule ○ Constant multiple rule ○ derivatives of Sine and Cosine • We will practice using the rules we introduced yesterday 4. <u>Check for understanding</u> – Student discussion and responses to questions 5. <u>Assignment</u>
<p>Tuesday and Wednesday 09/05 & 09/06 Topic: Derivatives Applied to velocity and acceleration</p>	<ol style="list-style-type: none"> 1. The students will use derivatives to find velocity and acceleration functions <u>Terms</u>– position, velocity, acceleration 2. <u>Engage and connect</u> – Use basic derivatives 3. <u>Guided instruction</u> – <ul style="list-style-type: none"> • Velocity is the rate of change of position. Therefore the velocity function is the derivative of the position function. • Acceleration is the rate of change of velocity. Therefore the acceleration function is the derivative of the velocity function. • Use derivative rules to find the velocity and acceleration functions given the position function. <u>Practice</u>: throughout the lesson 4. <u>Check for understanding</u> – Student discussion and responses to questions 5. <u>Assignment</u>