

# Calculus I Activity Objectives

Activity Title	Mathematical Objectives
Growing Money: Using Partial Derivatives (p. 6)	Find and evaluate the first partial derivatives of a multivariable function Interpret the practical meaning of partial derivatives
High School Students: Working with Rates of Change (p. 10)	Find and evaluate the derivative of a polynomial Use technology to determine relative extrema Estimate an inflection point from a graph Calculate and interpret the meaning of rates of change
Infant Growth Rates: Using Derivatives (p. 14)	Calculate the derivative of logarithmic and cubic functions Evaluate derivatives and interpret the meaning of the results Recognize the relationship between the slope of a graph and its derivative
Living with AIDS: Working with Derivatives (p. 18)	Interpret the practical meaning of the concavity of a graph Determine the sign of the first and second derivatives from a graph Find and evaluate the first and second derivatives of a quadratic function Estimate the derivative at a given value from a table
Movie Ticket Prices: Using Calculus to Analyze Change (p. 22)	Find, graph, and interpret the meaning of the derivative Shade the region representing the definite integral Calculate the area of a region represented by a definite integral Interpret the meaning of a definite integral Use an integral to find the average value of a function
PreK - Grade 8 Students: Working with Rates of Change (p. 26)	Find and evaluate the derivative of a cubic function Use the derivative to determine the slope of a function Estimate the coordinates of an inflection point from a graph Find the coordinates of an inflection point from an equation
Shipping Packages: Optimizing Functions with Calculus (p. 30)	Create a graphical representation of a verbal description Create a volume equation and calculate its derivative Determine the box dimensions that maximize volume
Shipping Packages #2: Optimizing Functions with Calculus (p. 34)	Create a graphical representation of a verbal description Create a volume equation and calculate its derivative Determine the box dimensions that minimize a volume function
Shipping Packages #3: Optimizing Functions with Calculus (p. 38)	Create a graphical representation of a verbal description Create a volume equation and calculate its derivative Determine the tube dimensions that maximize volume
Wind Chill Temperature: Using Calculus with Multivariable Functions (p. 42)	Evaluate a multivariable function at a given point Find and interpret the meaning of the first partial derivatives