

# 2.6 The Derivative

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using Tan's 5th edition *Applied Calculus* for the  
managerial, life, and social sciences text

# What is the derivative of something?

The derivative of a function  $f(x)$  is, mathematically speaking, the slope of the line tangent to  $f(x)$  at any point  $x$ .

It is also called “the instantaneous rate of change” of a function.

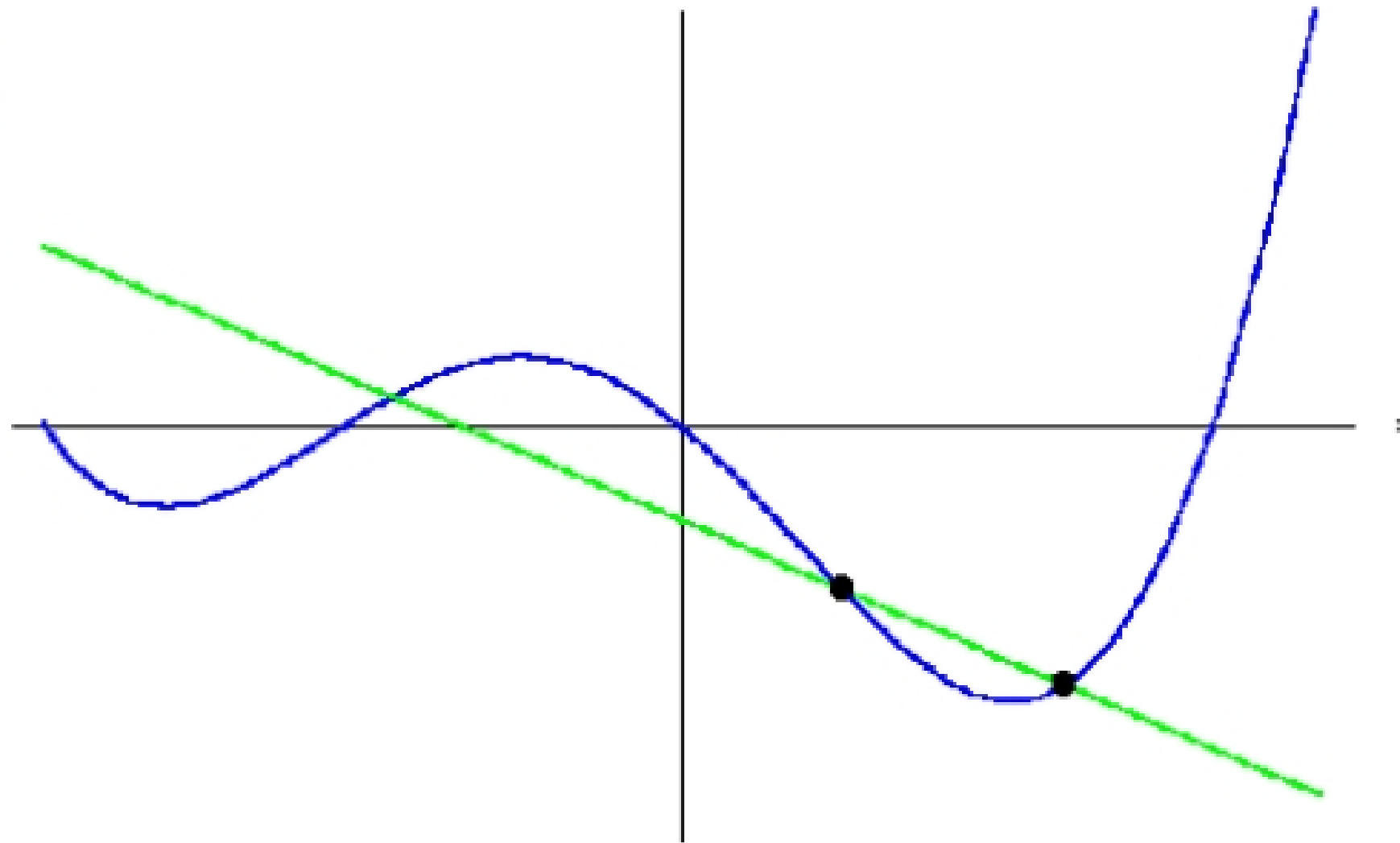
It can be equated with many real world applications such as;

Velocity which is speed such as miles per hour

In business, the derivative is called marginal, such as the marginal Cost function, etc.



We call a line which intersects a graph in two points a secant line. It is easy to find the slope of that line. But it takes limits in order to find the slope of the graph at only  $c$  raph at



The green line is a secant line because it crosses the blue graph more than once. In particular we focus on the two points illustrated. For animation you need to be connected to the internet.