# Derivatives with Distance, Velocity, and Acceleration

## Grade Level: 12

## Quote of the Day

“The essence of mathematics is not to make simple things complicated, but to make complicated things simple.”  
~ S. Gudder

## Objectives

After this class students should be able to:
- Find an equation for velocity and acceleration, using first and second derivatives.
- Create graphs depicting distance, velocity, and acceleration.
- Use picnik application to relate graphs.

## Lesson

1. Every student gets a different distance equation, such as \( y = x^4 + 3 \)
2. Students then find an equation for velocity and acceleration. Explain that this is the first and second derivatives of the distance equation.
3. Students then create graphs depicting their equations
4. Show how to change graphs to picture files
5. Students will then use the picnik application to make a collage of graphs in order to compare them.

## Assessment

Have students get together in groups and share their work. Then have them compare work and equations. Students will then write up their observations and turn them in.

## Food for thought


*Weapons of Math Destruction™*