

# Unit 07: Honors: Applications of Differentiation

Content Area: **Math**  
Course(s): **Pre-Calc H**  
Time Period: **Semester 2**  
Length: **4 cycles**  
Status: **Published**

## Unit Introduction

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## Standards

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- Compute the magnitude of a scalar multiple  $cv$  using  $||cv|| = |c|v$ ; compute the direction of  $cv$  knowing that when  $|c|v \neq 0$ , the direction of  $cv$  is either along  $v$  (for  $c > 0$ ) or against  $v$  (for  $c < 0$ )
- Perform operations on vectors in component form: • identify vector components from an initial and terminal point • scalar multiplication • vector addition and subtraction
- Recognize vector quantities as having both magnitude and direction; represent vector quantities by directed line segments and use appropriate symbols for vectors and their magnitudes (e.g.,  $v$ ,  $|v|$ ,  $||v||$ ,  $v$ )
- Represent and perform vector operations geometrically • scalar multiplication • vector addition (triangle and parallelogram models) • vector subtraction (adding a negative vector, missing addend model)
- Solve problems involving velocity and other quantities that can be represented by vectors