

## Section 1: Concepts and Terminology

Suppose  $y = \phi(x)$  is a differentiable function. We know that  $dy/dx = \phi'(x)$  is another (related) function.

For example, if  $y = \cos(2x)$ , then  $y$  is differentiable on  $(-\infty, \infty)$ . In fact,

$$\frac{dy}{dx} = -2 \sin(2x).$$

Even  $dy/dx$  is differentiable with  $d^2y/dx^2 = -4 \cos(2x)$ .

We didn't even get to this first slide.  
We'll start here on Wednesday.