

## Quiz 13.1 – 13.3 Outline

- ❖ Find the slope of the secant line of a given function through two given  $x$  values.  
like 13.1 #1
- ❖ Use the definition of a derivative (provided) to find a derivative equation  
like 13.1 # 4, 5, 6c
- ❖ Use the power to find the first or second derivative of a function (in Formula Booklet)
  - Remember... no negative exponents in your final answer!  
like 13.2 # 1, 2, 5
- ❖ Evaluate a first or second derivative at a given  $x$  value.  
like 13.2 # 3, 4, 6
- ❖ Find the point(s) where the tangent line is horizontal. or have slope of given value  
like 13.3 # 4 or #11e
- ❖ Find the equation in  $y = mx + b$  form of the tangent line of a function at a given  $x$ -value
  - A tangent line uses the slope at the given  $x$ -value. like 13.3 #6
  - You need to know point-slope form:  $y - y_1 = m(x - x_1)$
- ❖ Find the equation in  $y = mx + b$  form of the normal line of a function at a given  $x$ -value
  - A normal line uses the perpendicular slope at the given  $x$ -value. like 13.3 #6

### Formula Sheet

Derivative of  $f(x)$

$$y = f(x) \Rightarrow \frac{dy}{dx} = f'(x) = \lim_{h \rightarrow 0} \left( \frac{f(x+h) - f(x)}{h} \right)$$

7.2	Derivative of $ax^n$	$f(x) = ax^n \Rightarrow f'(x) = nax^{n-1}$
	Derivative of a sum	$f(x) = ax^n, g(x) = bx^m \Rightarrow f'(x) + g'(x) = nax^{n-1} + mbx^{m-1}$