DATE:_____

Derivatives of Exponential Functions

$$\frac{d}{dx}(e^x) = e^x$$

Example 1:

Given $f(x) = 2e^x$, find $f'(3)$.

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Example 2:

Given $g(x) = e^{2x}$, find $g'(x)$.

Example 3:

Given $h(x) = \frac{e^{3x+1}}{x^3+4}$, find $h'(x)$.

Example 4:

The table below gives values of a function f and its derivative f'.
If $p(x) = f(x)(e^{x-1} - 2x)$, find the equation of the line tangent to $p(x)$ at $x = 1$.

x	$f(x)$	$f'(x)$
-1	0	-6
0	-1	-4
1	4	7

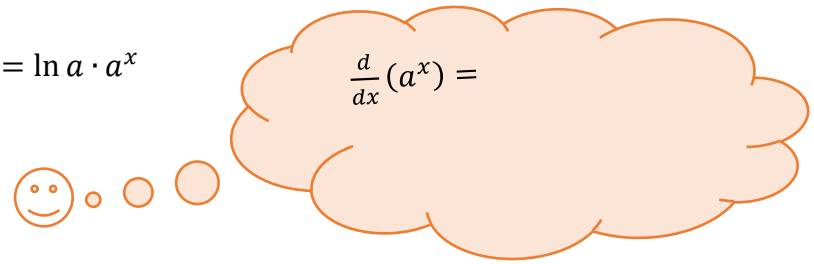
Example 5:

Find y'', where $y = \sqrt[3]{e^{x+1}}$.

Example 6:

Find $\frac{dy}{dx}$ in terms of x for $e^x + e^y = x^3$.

$$\frac{d}{dx}(a^x) = \ln a \cdot a^x$$



Example 1:

Given $f(x) = 4^{3x^2-2}$, find the slope of $f(x)$ at $x = 1$.

Example 2:

Given $g(x) = x \cdot 5^{2x}$, find $g'(x)$.