

Derivatives of simple functions

MTH 201 – Module 4A part 1

If $y = x^{100}$, then $dy/dx =$

$$x^{99}$$

$$x^{100}$$

$$99x^{100}$$

$$100x^{99}$$



To

0

$$\frac{d}{dx} [3^2] =$$

0

3

3^3

$2 \cdot 3^1$

None of the above



To 0

If $y = 5^x$, then $y' =$

$$5^x$$

$$x5^{x-1}$$

$$5^{x-1}$$

$$5^x \ln(5)$$

$$5^x \ln(x)$$



To

0

Which of the following functions can we differentiate right now, using only algebra simplification and the rules of Section 2.1? Select ALL that apply.

$$y = \sqrt{x}$$

$$y = \sqrt{x^2 + 1}$$

$$y = \frac{x^2+1}{x}$$

$$y = \frac{x}{1+x^2}$$

$$y = x \cdot 2^x$$



What's important

- Knowing **when** to use a derivative
- Knowing **how** to use a derivative in any situation (formulas, tables, graphs)
- Knowing **what** the derivative tells you
- Being able to **explain** the outcome of a derivative to someone else

Kind of important: Breaking down the **steps used** in computing a derivative

Less important: **Actually computing** a derivative -- computers do this better than us



Activity at Jamboard

If $f(x) = 3x^3 + 2x^2 - 5x + 7$, then the slope of the tangent line to the graph of $f(x)$ at $x = 1$ is

0

8

18

$9x^2 + 4x - 5$

None of the above

