

### Info about the derivative of exponential functions:

You already know that the derivative of  $e^x$  is  $e^x$ . What you might not yet know is that if the power is anything other than  $x$ , the problem is treated like a chain rule. First, you take the derivative of the whole function (which is identical, since it's an exponential function). Then, you take the derivative of the exponent.

For example: if  $y = e^{5x}$ , then  $y' = (e^{5x})(5)$  or  $y' = 5e^{5x}$ .

Likewise, if  $y = e^{2x^4+5x}$ , then  $y' = (e^{2x^4+5x})(8x^3 + 5)$ .

If you would like to see some videos of this in action, go to Patrick's site. He does a great job explaining!



<http://goo.gl/mvFP2v>

So, now I want you to work through the notecard. You can check yourself at <http://goo.gl/GOYzWr> (or just use this qr code:



Then, work on the assignment. It is a mixed review of chain rule and exponential derivatives.

The assignment will be due Monday, 10/28.

In case you are on the district's Wi-Fi, lightspeed blocks shortened websites, so here are the full links from above:

<http://www.whsmath.com/notecards/keys/nc33%20key.pdf>

<http://www.youtube.com/watch?v=OjnOgoEu6CM>