

pl

INTER PRETATION. IF 125,000 UNITS ARE SOLD, THEN THE REVENUE IS \$78,125. IF AN ADDITIONIAL 1,000 UNITS ARE SOLD, THE REVENUE INCREASES BY ABOVET \$250.

pə EQUIVALENTLY: WHEN IS THE MARGINAL REVENUE POSITIVE?

$$\begin{array}{c|c} INCRERSING \longleftrightarrow R'(q) > 0. \\ so we need to solve IDDD-6q>0 For q. \\ -6q>-1000 so q < \frac{-1000}{-6} \\ \hline This means if less than 167,000 \\ \hline q < 166.66 \\ \hline INCREASING. \end{array}$$

<u>SO FAR</u>: WE CAN TAKE DERIVATIVES OF FUNCTIONS THAT WE CAN WRITE AS X TO A POWER. ... WHAT ABOUT OTHER FUNCTIONS? (THERE ARE <u>A LO</u>T OF OTHER FUNCTIONS!)

WHAT IF I WANT TO FIND $\frac{d}{dx}(e^{x})$? NOTICE THAT I'LL HAVE A REALLY HARD TIME REWRITING e^{x} As a power of x... So we can't use The product rule HERE. Let's they using Ave. Rate of change.



 $\frac{DERIVATIVE RULE}{dx} = e^{x} ! EQUIVALENTLY... \text{ IF } f(x) = e^{x} \text{ , THEN } f'(x) = e^{x}.$ $\frac{DERIVATIVE RULE}{dx} = \frac{d}{dx} (a^{x}) = (ln(a)) \cdot a^{x} ! EQUIVALENTLY... \text{ IF } f(x) = a^{x}, \text{ THEN } f'(x) = lna \cdot a^{x}.$