

6.2 Videos Guide

6.2a

- The derivative of an exponential function using the definition of a derivative
- The derivative of the natural exponential function

Exercise:

- Find y' and y'' for $y = e^{x^2}$.
- A derivation of the value of Euler's number, e
- The integral of the natural exponential function

6.2b

Exercises:

- Differentiate the function.

$$y = \frac{e^x}{1 - e^x}$$

- Evaluate the integral.

$$\int x^2 e^{x^3} dx$$

- Find the limit.

- $\lim_{x \rightarrow -\infty} (1.001)^x$
- $\lim_{x \rightarrow (\pi/2)^+} e^{\tan x}$

6.2c

Exercise:

- Find the absolute maximum and absolute minimum values of f on the given interval.
 $f(x) = xe^{x/2}, \quad [-3, 1]$