# Worksheet: Exponential and Log Functions

ECON 441: Introduction to Mathematical Economics — Instructor: Div Bhagia

- Derivative of the exponential function:

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

- Derivative of the log function:

$$\frac{d}{dx}\ln x = \frac{1}{x}$$

Find the derivatives for the following functions:

1. $y = e^x$

2. $y = \ln x$

3. $y = ae^{rx}$

4. $y = e^{-x}$

5. $y = \ln ax$

6. $y = \ln x^c$