

# 20 Lecture - MTH101

## Important Subjective

**What is the derivative of  $\ln(x)$ ?**

**Answer:** The derivative of  $\ln(x)$  is  $1/x$ .

**What is the derivative of  $e^x$ ?**

**Answer:** The derivative of  $e^x$  is  $e^x$ .

**What is the derivative of  $\ln(u)$ , where  $u$  is a function of  $x$ ?**

**Answer:** The derivative of  $\ln(u)$  is  $u'/(u)$ .

**What is the derivative of  $e^u$ , where  $u$  is a function of  $x$ ?**

**Answer:** The derivative of  $e^u$  is  $e^u * u'$ .

**What is the derivative of  $\ln(ax)$ , where  $a$  is a constant?**

**Answer:** The derivative of  $\ln(ax)$  is  $1/(x \ln(a))$ .

**What is the derivative of  $e^{(ax)}$ , where  $a$  is a constant?**

**Answer:** The derivative of  $e^{(ax)}$  is  $ae^{(ax)}$ .

**What is the derivative of  $\ln(x^n)$ , where  $n$  is a constant?**

**Answer:** The derivative of  $\ln(x^n)$  is  $n/x$ .

**What is the derivative of  $e^{(nx)}$ , where  $n$  is a constant?**

**Answer:** The derivative of  $e^{(nx)}$  is  $ne^{(nx)}$ .

**What is the derivative of  $\ln(e^x)$ ?**

**Answer:** The derivative of  $\ln(e^x)$  is 1.

**What is the derivative of  $e^{\ln(x)}$ ?**

**Answer:** The derivative of  $e^{\ln(x)}$  is  $x$ .