

**Salahaddin University-Erbil**  
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# **Mathematics II**

## **Transcendental Function**

### **The function $y = \log_a u$**

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• *Find the following*

•  $\log_4 16$

•  $\log_{0.5} 4$

• Find  $x$  if  $6^{\log_6 10} + 2^{\log_2 8} = 8^{\log_8 x}$

• Find  $dy/dx$  for:

•  $y = \log_4 x^2$

•  $y = \ln 10^x$

• Evaluate

•  $\int \frac{dx}{x(\log_8 x)^2}$

•  $\int 5^{2t-2} dt$

- **Ex.**  $\lim_{x \rightarrow 4} \frac{e^{x-4} + 4 - x}{\cos^2 \pi x}$

- **Find x value** for

- $x^x = 2^x$

- $3^x = 2^{x+1}$

- **Find y'** for

- $y = \frac{1}{\log_2 x}$

- $y = e^{\log_{10} x}$

- **Evaluate:**

- $\int \frac{\sec^3 x + e^{\sin x}}{\sec x} dx$