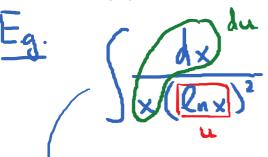
5.6. Integnals that involve Exponential and Log Wednesday, April 25, 2018 8:02 AM

## Formulas:

$$\int_{a}^{x} dx = \frac{a^{x}}{l_{na}} + C; \quad \int_{a}^{u} du = \frac{a^{u}}{l_{na}} + C.$$

$$\int \frac{1}{x} dx = \int \frac{dx}{x} = \ln|x| + C$$

$$\int \frac{du}{u} = \ln|u| + C$$

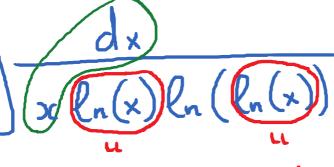


Let 
$$u = \ln x$$
  
 $du = \frac{1}{x} dx$ 

$$\int \frac{du}{u^2} = \int u^{-2} du = -\frac{1}{u} + C$$

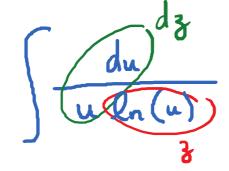
$$= -\frac{1}{0_{m}} + C$$





du

let u = lnx; du = 1/x dx



$$dz = ln(u)$$

$$dz = \frac{1}{u} du$$

$$\int \frac{d3}{3} = \ln|3| + C$$

$$= \ln|\ln(\ln x)| + C$$

$$\frac{2^{nd}}{x} = \frac{dx}{x \ln(x) \ln(\ln(x)) u}$$
Let  $u = \ln(\ln(x))$ ;  $du = \frac{1}{\ln x} \cdot \frac{1}{x} dx$ 

$$\int \frac{du}{u} = \ln|u| + C = \ln|\ln(\ln(x))| + C$$

$$\frac{E_{-g}(-\frac{1}{9})}{\int_{-\frac{1}{9}}^{9} \frac{e^{-x^{9}}}{dx} dx} = -\frac{1}{9} e^{u} + C = -\frac{1}{9} e^{-x^{9}} + C$$

$$\frac{1}{9} \int_{-\frac{1}{9}}^{9} e^{u} du = -\frac{1}{9} e^{u} + C = -\frac{1}{9} e^{-x^{9}} + C$$