$$\begin{array}{lll}
40) & \int_{0}^{\theta} \sec \theta \, d\theta &= \int_{0}^{\theta} \sec \theta \, \frac{\sec(\theta) + \tan(\theta)}{\sec(\theta) + \tan(\theta)} \, d\theta \\
&= \int_{0}^{\theta} \underbrace{\sec^{2} \theta + \sec \theta \, \tan \theta}_{\text{Sex} \theta} \, \frac{dx}{d\theta} & \underbrace{L = \sec \theta + \tan \theta}_{\text{A} \theta} \\
& \underbrace{L = \sec \theta + \tan \theta}_{\text{A} \theta} & \underbrace{L = \sec \theta + \sec \theta \, \tan \theta}_{\text{A} \theta}
\end{array}$$

$$\int_{a}^{b} \frac{bu}{u} = \ln(u) \Big|_{a}^{b} = \frac{1}{\ln(u)} \ln|\sec(b) + \tan(b)|_{0}^{b}$$

. So see 
$$\phi d\phi = \ln \left| \text{Sec}(\theta) + \text{tan}(\theta) \right|$$