

Name:

Sautins

Section: 7 8

1. Evaluate $\arccos(0)$. $= \theta \Leftrightarrow \cos(\theta) = 0$
 $\Leftrightarrow \theta = \pi/2$

2. Find the derivative of $y = \sin^{-1}(\ln x) + \arctan(e^x)$.

$$y' = \frac{1}{1 + (\ln x)^2} \cdot \frac{1}{x} + \frac{1}{1 + (e^x)^2} \cdot e^x$$

3. Evaluate the integral $\int \frac{dx}{9 + x^2}$.

$$= \int \frac{dx}{9 \left(1 + \left(\frac{x}{3}\right)^2\right)}$$

$$u = \frac{x}{3}$$

$$du = \frac{1}{3} dx$$

$$3 du = dx$$

$$= \frac{1}{9} \int \frac{3 du}{1 + u^2}$$

$$= \frac{1}{3} \tan^{-1}(u) + C$$

$$= \frac{1}{3} \tan^{-1}\left(\frac{x}{3}\right) + C.$$