Math 126 – Quiz 1   Name_____

1. (2 pts.) $\cos \frac{\pi}{6}$ =

2. (2 pts.) $\tan \frac{3\pi}{4}$ =

3. (2 pts.) $\sec \pi$ =

4. (2 pts.) $\sin \frac{7\pi}{4}$ =

5. (2 pts.) $\cos \frac{2\pi}{3}$ =

6. (5 pts.) What is the derivative of $f(x) = e^{\frac{\sin x}{x^3}}$?

7. (5 pts.) What is the inverse of $f(x) = 3x^2 + 12x + 12$ where $x \geq -2$?

Any suggestions for how lectures or lab sections can be more helpful to you learning Calculus?

LOGARITHMS

The logarighm to base a of x is the power of a you need to get x

$\ln x$ is the inverse of e^x 　　　　　　　$\log_a x$ is the inverse of a^x

$e^{\ln x} = x$ 　　　　　　　　　　　　$a^{\log_a x} = x$
$\ln e^x = x$ 　　　　　　　　　　　　$\log_a a^x = x$

$\ln 1 = 0$ 　　　　　　　　　　　　$\log_a 1 = 0$
$\ln x \cdot y = \ln x + \ln y$ 　　　　　　$\log_a x \cdot y = \log_a x + \log_a y$
$\ln \dfrac{x}{y} = \ln x - \ln y$ 　　　　　　$\log_a \dfrac{x}{y} = \log_a x - \log_a y$
$\ln \dfrac{1}{y} = -\ln y$ 　　　　　　　$\log_a \dfrac{1}{y} = -\log_a y$
$\ln x^y = y \ln x$ 　　　　　　　　　$\log_a x^y = y \log_a x$

$$\log_a x = \frac{\ln x}{\ln a}$$

$\dfrac{d}{dx} \ln u = \dfrac{1}{u} \dfrac{du}{dx}$ 　　　　　$\dfrac{d}{x} \log_a u = \dfrac{1}{\ln a} \cdot \dfrac{1}{u} \dfrac{du}{dx}$

$$a^x = e^{x \ln a}$$

$\dfrac{d}{dx} e^u = e^u \dfrac{du}{dx}$ 　　　　　$\dfrac{d}{dx} a^u = \ln a \cdot a^u \dfrac{du}{dx}$