

## Math 189 – Formula Sheet for Quiz #2

### Trig integrals:

$$\begin{aligned}\int \tan x \, dx &= -\ln|\cos x| + C \\ &= \ln|\sec x| + C\end{aligned}$$

$$\begin{aligned}\int \cot x \, dx &= \ln|\sin x| + C \quad (\text{textbook}) \\ &= -\ln|\csc x| + C \quad (\text{Gilles' materials})\end{aligned}$$

$$\int \sec x \, dx = \ln|\sec x + \tan x| + C$$

$$\begin{aligned}\int \csc x \, dx &= \ln|\csc x - \cot x| + C \quad (\text{textbook}) \\ &= -\ln|\csc x + \cot x| + C \quad (\text{Gilles' materials})\end{aligned}$$

$$\int \sec^2 x \, dx = \tan x + C$$

$$\int \csc^2 x \, dx = -\cot x + C$$

$$\int \sec x \tan x \, dx = \sec x + C$$

$$\int \csc x \cot x \, dx = -\csc x + C$$

$$\int \frac{dx}{\sqrt{a^2 - x^2}} = \sin^{-1}\left(\frac{x}{a}\right) + C$$

$$\int \frac{dx}{a^2 + x^2} = \frac{1}{a} \tan^{-1}\left(\frac{x}{a}\right) + C$$

### Differential Equations:

$$y = e^{\alpha x} (C_1 \sin \beta x + C_2 \cos \beta x)$$

$$m \frac{d^2 x}{dt^2} + b \frac{dx}{dt} + kx = F_{ext}(t)$$

### Statistics

$$\geq \left(1 - \frac{1}{k^2}\right)$$

$$z = \frac{x - \mu}{\sigma}$$