

# Quiz 2 Cheat Sheet!

TIM

TRIG IDENTITIES

$$\tan^2 x = \sec^2 x - 1$$

$$\cot^2 x = \csc^2 x - 1$$

$$\cos(2x) = 2\cos^2 x - 1 = \cos^2 x - \sin^2 x = 1 - 2\sin^2 x$$

$$\sin^2 x = \frac{1 - \cos 2x}{2}$$

Daniel Brantley  
Arc Length for curves

$$\int_a^b \sqrt{1+f'(x)^2} dx$$

$$\int_a^b \sqrt{x'(t)^2 + y'(t)^2} dt$$

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

$$\int \tan(x) dx = -\ln|\cos x| + C = \ln|\sec x| + C$$

Jon

$$\cos^2 x = \frac{\cos(2x) + 1}{2}$$

$$\sin(2x) = 2 \sin x \cdot \cos x$$

$$\int \csc x dx = \ln \left| \frac{\sin x}{\cos x + 1} \right| = -\ln |\cot(x) + \csc(x)|$$

$$\int \cot x dx = \ln |\sin(x)| = -\ln |\csc x|$$

Mustafa

Int. By Parts

$$UV - \int v du$$

$$\int \sin^2 x dx = \frac{1}{2}x - \frac{1}{4}\sin 2x + C$$

Alex

Arc Length

$$x = g(y)$$

$$\int_c^d \sqrt{1 + g'(y)^2} dy$$

Holla

$$\int \tan x = -\ln|\cos x|$$

$$\int \cot x = \ln|\sin x|$$

$$d \sec x = \frac{\sin x}{\cos^2 x}$$

$$d \csc x = \frac{-\cos x}{\sin^2 x} \text{ Done}$$

David S.

$$\int \sec^3(x) = \frac{1}{2} \tan x \sec x + \frac{1}{2} \ln|\sec x + \tan x| + C$$

Amy

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

$$\int x^2 e^{ax} dx$$

E/2

u	dv
<del><math>x^2</math></del>	$e^{ax}$
<del><math>2x</math></del>	$e^{ax} +$
<del><math>2</math></del>	$e^{ax} -$
<del><math>0</math></del>	$e^{ax} +$

$$= \frac{x^2 e^{ax}}{a} - \frac{2x e^{ax}}{a^2} + \frac{2e^{ax}}{a^3} + C$$

David L.

$$\int \ln(x) dx$$

$$u = \ln x \quad dv = dx$$

$$du = \frac{1}{x} dx \quad v = x$$

$$= x \ln x - \int x \cdot \frac{1}{x} dx$$

$$= x \ln x - x + C$$