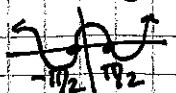
Notes: Verify Trig Identities

Day 3

Even/Odd

Even - Trig Identities → Remember even functions are symmetrical across the y-axis ex $f(-2)=f(2)$

or $f(x)=f(-x)$ or $y=\cos x$



- $\cos(x) \rightarrow \cos(-x)=\cos(x)$
- $\sec(x) \rightarrow \sec(-x)=\sec(x)$

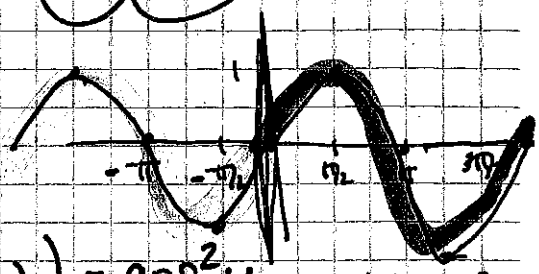
Use these to verify trig. identities

$f(-\pi/2)=0$

$f(\pi/2)=0$

Odd → Remember odd functions are symmetrical about the origin

- $\sin(x) \rightarrow \sin(-x)=-\sin(x)$
- $\csc(x) \rightarrow \csc(-x)=-\csc(x)$
- $\tan(x) \rightarrow \tan(-x)=-\tan(x)$
- $\cot(x) \rightarrow \cot(-x)=-\cot(x)$



Rotate 180°

$f(-x)=-f(x)$

$f(-\pi/2)=-1$

Example One $(1+\sin(y))(1+(\sin(-y))=\cos^2 y$

$(1+\sin y)(1-\sin y)=\cos^2 y$

$1-\sin y+\sin y-\sin^2 y=\cos^2 y$

$1-\sin^2 y=\cos^2 y$

$\cos^2 y=\cos^2 y$

Example Two

Start here

$$\frac{\sec(-x)}{\csc(-x)}=-\tan(x)$$

$$\frac{\sec(x)}{-\csc(x)}=-\tan(x)$$

$$\frac{\frac{1}{\cos x}\cdot\frac{\sin x}{1}}{-\frac{1}{\sin x}}=-\tan(x)$$

$$\frac{\frac{\sin x}{\cos x}}{-1}=-\tan(x)$$

$$-\tan x=-\tan(x)\ \checkmark$$