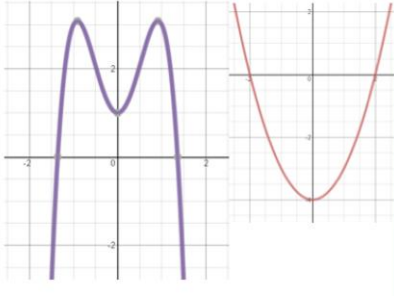


Section 5-3 Other Composite Argument Properties

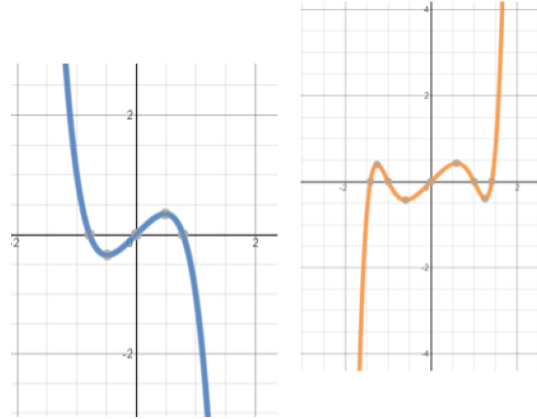
even functions

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



Odd functions

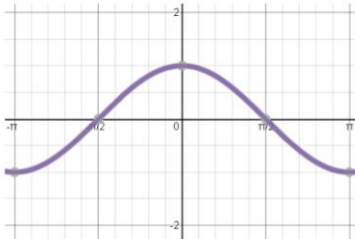
$$f(-x) = -f(x)$$



even function

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

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



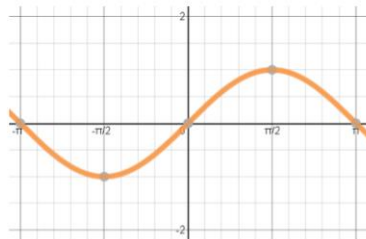
$$\cos(45) = \frac{\sqrt{2}}{2}$$

$$\cos(-45) = \frac{\sqrt{2}}{2}$$

odd function

$$\sin(-x) = -\sin x$$

$$\csc(-x) = -\csc x$$

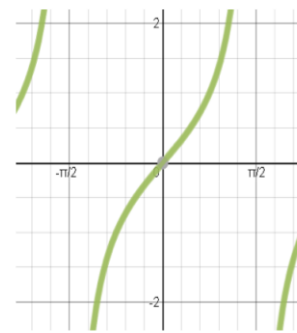


$$\sin(30) = \frac{1}{2}$$

$$\sin(-30) = -\frac{1}{2}$$

odd function

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



$$\cot(-x) = -\cot x$$

So **cosine and its reciprocal, **secant**, are the only **EVEN** functions, rest of them are odd!

cofunction properties

$$\cos \theta = \sin(90 - \theta)$$

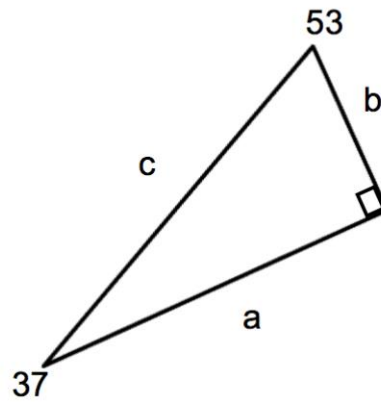
$$\sin \theta = \cos(90 - \theta)$$

$$\tan \theta = \cot(90 - \theta)$$

$$\cot \theta = \tan(90 - \theta)$$

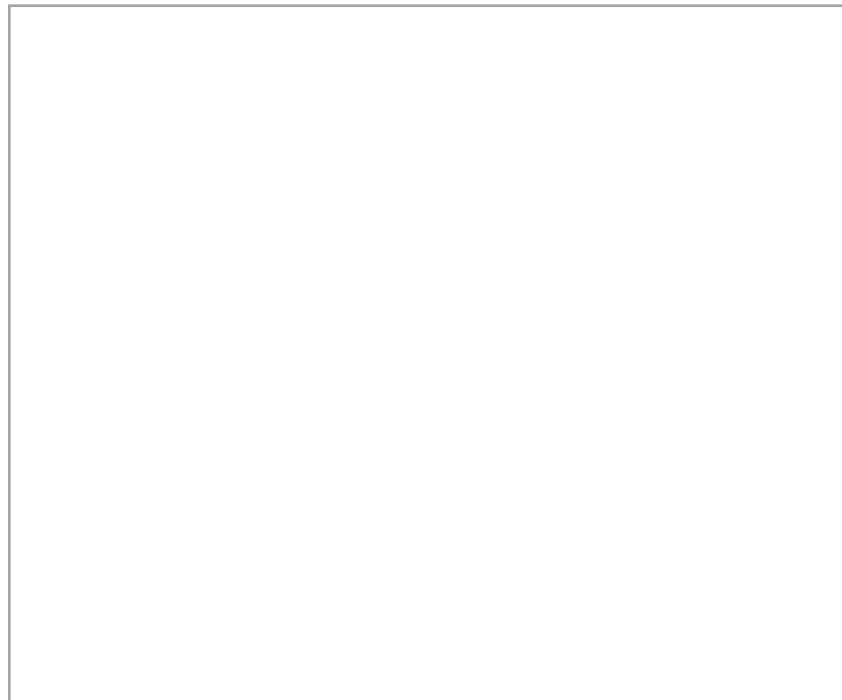
$$\sec \theta = \csc(90 - \theta)$$

$$\csc \theta = \sec(90 - \theta)$$



Proof:

$$\sin \theta = \cos(90^\circ - \theta)$$



Proof:

$$\sin(\theta + 30) + \cos(\theta + 60) = \cos \theta$$

Use the composite argument properties to solve the equation.

1. $\sin 5\theta \cos 3\theta - \cos 5\theta \sin 3\theta = \frac{1}{2}$ $\theta \in [0, 360^\circ]$