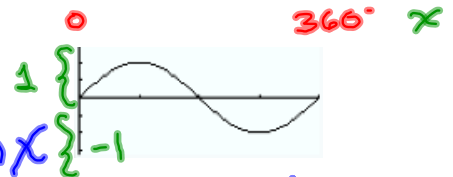


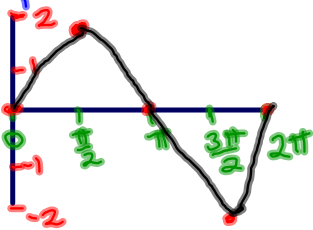
Lesson #17

Aim: What is an horizontal shift?

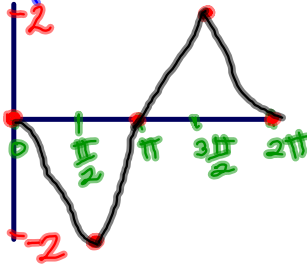


Do Now Parent function $y = \sin(x)$
 Use your calculator to describe each transformation to the parent function

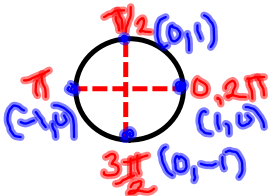
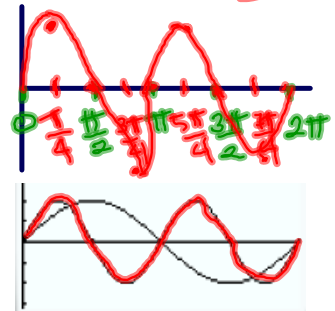
① $y = 2\sin(x)$



② $y = -2\sin(x)$



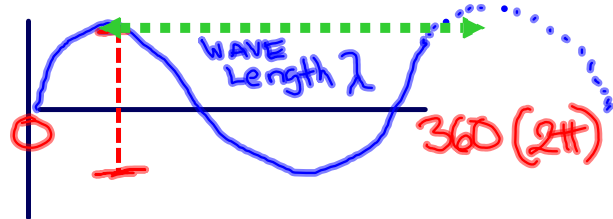
③ $y = \sin(2x)$



Unit Circle (x, y)
 \downarrow \downarrow
 cos sin

I - Amplitude, Frequency, Period

1) Amplitude (a) =
 (Range/4)
 the distance between...



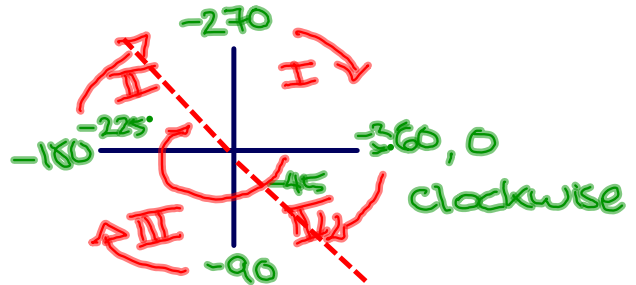
2) Frequency (b) = the number of times the graph repeats in an SPECIFIC SPACE, PERIOD

3) Period = $\frac{2\pi}{|b|}$

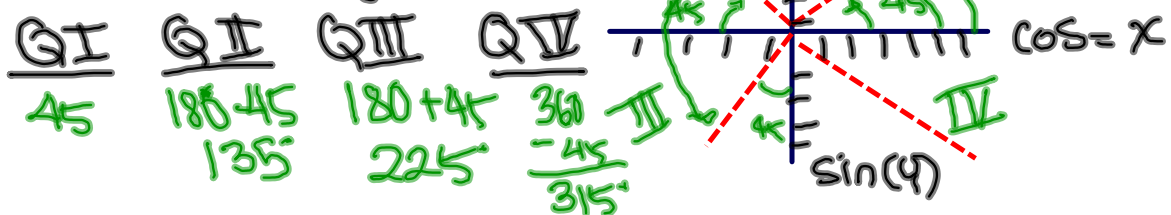
4) $y = a \sin bx$
 a: ampl. b: freq.

II- Non-Quadrantal angle

1) Negative angles



2) Reference angles (QI)
(Acute angles)



QI	QII	QIII	QIV
45	180-45 135	180+45 225	360-45 315

$\sin 45^\circ$ $\sin 135^\circ$ $\sin 225^\circ$ $\sin 315^\circ$
 0.707 0.707 -0.707 -0.707

$\cos 45^\circ$ $\cos 135^\circ$ $\cos 225^\circ$ $\cos 315^\circ$
 0.707 -0.707 -0.707 0.707

find 3 ^{PAIRS} angles one positive one negative that are the SAME.