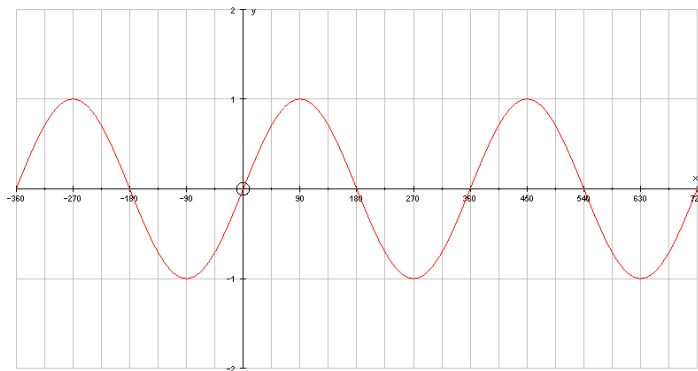
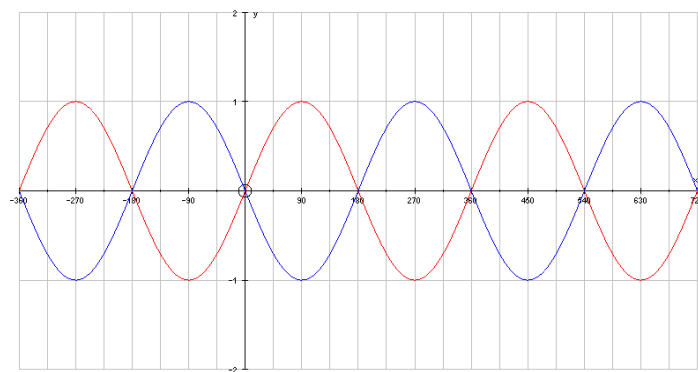


Other Sinusoidal Functions

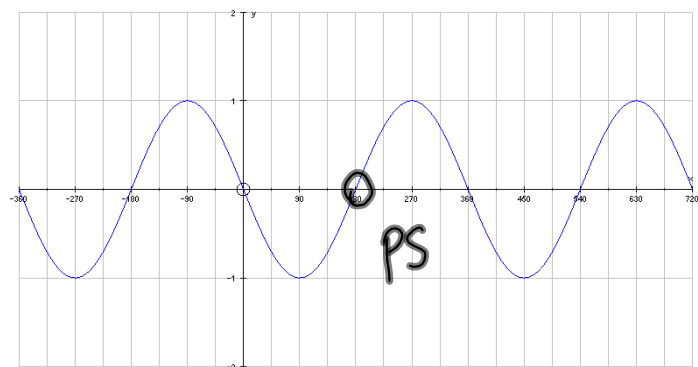


$$\leftarrow y = \sin x$$



$$\leftarrow y = -\sin x \text{ (reflection of } y = \sin x \text{)}$$

$$\leftarrow y = \sin x$$

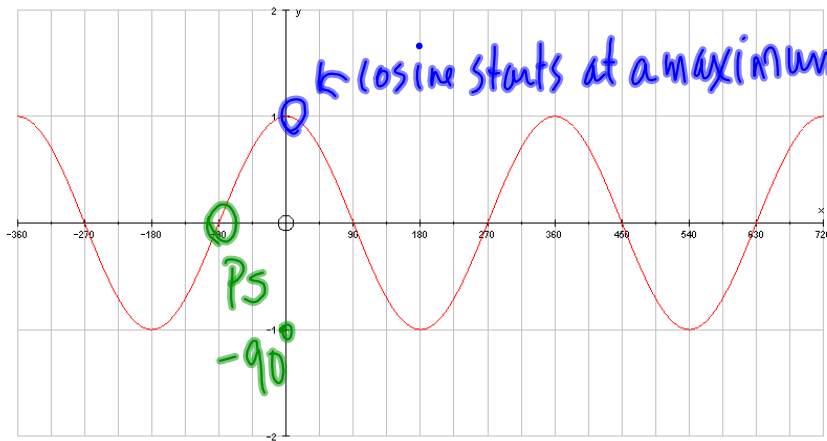


$$y = \sin(x - 180^\circ)$$

is the same as

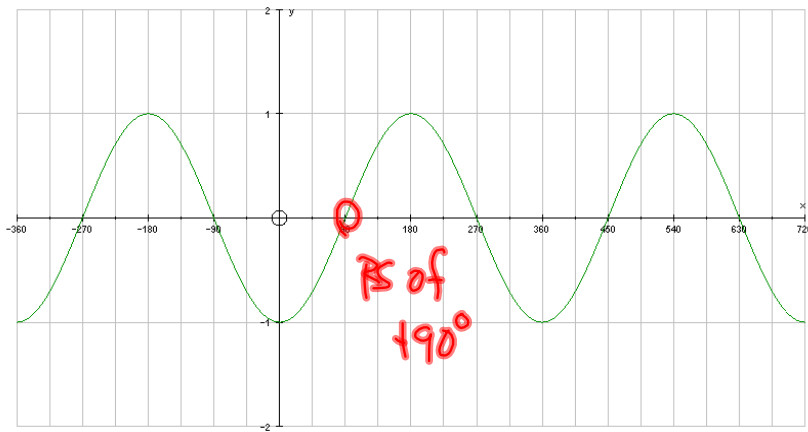
$$y = -\sin x$$

$y = -\sin x$ is just a reflection of $y = \sin x$
 or could be written as a PS of 180° of $y = \sin x$
 (ie. $y = \sin(x - 180^\circ)$)



$$y = \cos x$$

$$y = \sin(x + 90^\circ)$$



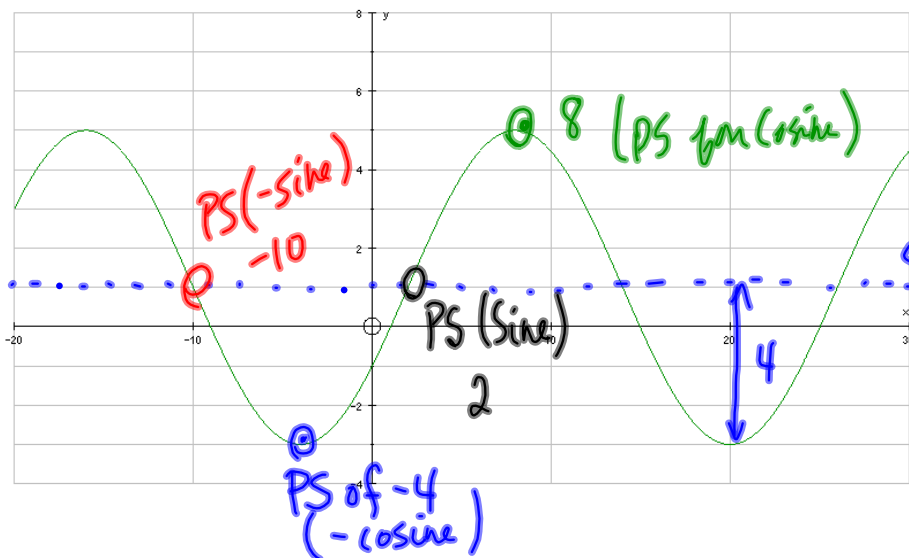
$$y = -\cos x$$

(reflection of $y = \cos x$)

$$y = \sin(x - 90)$$

PS of sin

Every sine graph can be written as a reflection / phase shift
 Every sine graph can be written as a cosine function



Amp: 4
 Period: 24

SA $y=1$

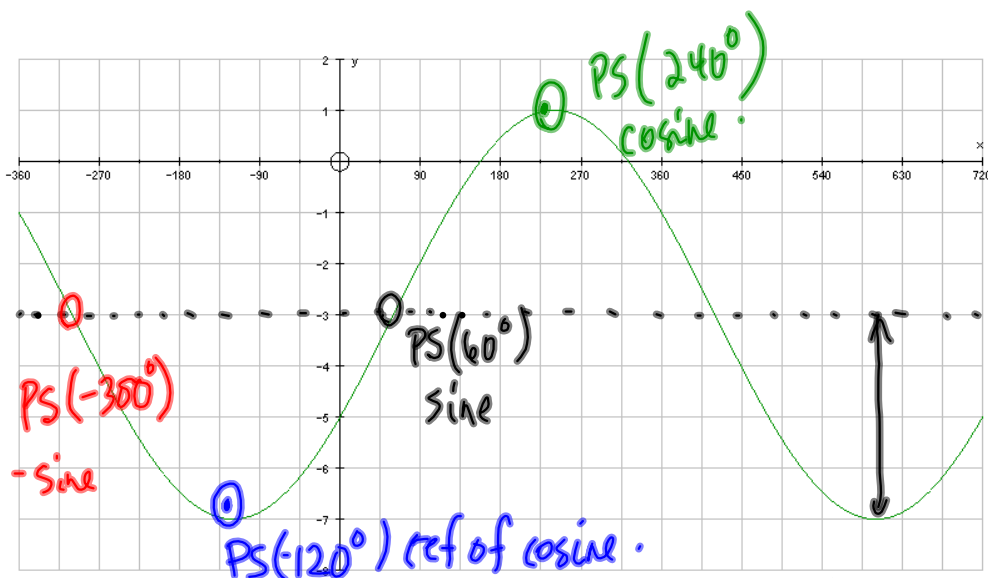
PS (depends
 on
 whether its
 sine / cosine /
 or reflection)

$$\text{Sine: } \frac{1}{4}(y-1) = \sin\left(\frac{360}{24}(x-2)\right)$$

$$\text{-sine: } \frac{1}{4}(y-1) = -\sin\left(\frac{360}{24}(x+10)\right)$$

$$\text{cosine: } \frac{1}{4}(y-1) = \cos\left(\frac{360}{24}(x-8)\right)$$

$$\text{-cosine: } \frac{1}{4}(y-1) = -\cos\left(\frac{360}{24}(x+4)\right)$$



SA: $y = -3$
 Amp: 4
 Period: 720

(jumps of 180)

Sine: (going up) $\frac{1}{4}(y+3) = \sin\left(\frac{360}{720}(x-60)\right)$

-Sine: (going down) $\frac{1}{4}(y+3) = \sin\left(\frac{360}{720}(x+300)\right)$

cosine: (max) $\frac{1}{4}(y+3) = \sin\left(\frac{360}{720}(x-240)\right)$

-cosine (min) $\frac{1}{4}(y+3) = \sin\left(\frac{360}{720}(x+120)\right)$