

4-2 Day 2

I. Domain and Range of Sine and Cosine

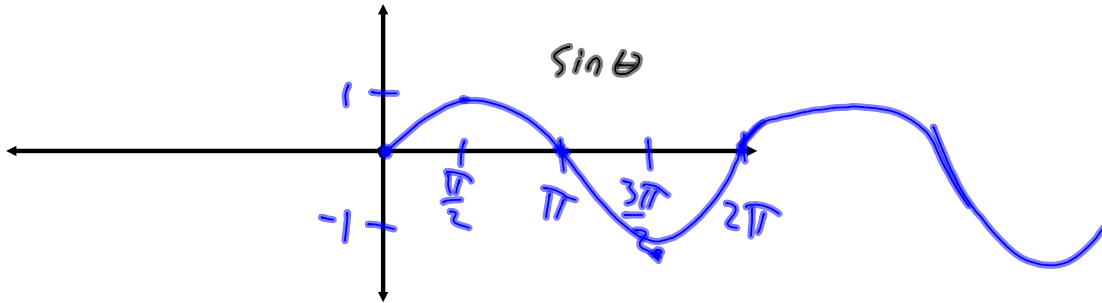
Look at unit circle to help graph....

sine: Domain: $(-\infty, \infty)$
Range: $[-1, 1]$

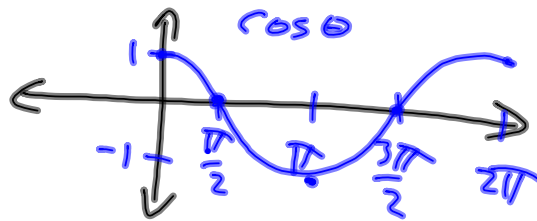
cosine: Domain: $(-\infty, \infty)$
Range: $[-1, 1]$

Period = 2π

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What does it mean to be periodic?



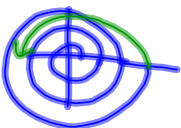
Ex 1) $\sin \frac{13\pi}{6} = 13 \div 6 = 2.1\bar{6}$

$\sin \frac{\pi}{6} = \frac{1}{2}$

$\frac{13\pi}{6} - \frac{2\pi}{1} = \frac{13\pi}{6} - \frac{12\pi}{6} = \frac{\pi}{6}$

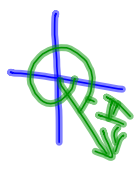


Ex 2) $\cos 7\pi = \cos \pi = -1$



Ex 3) $\sin \frac{-9\pi}{4}$

$\frac{9}{4} = 2.25$
 $= \sin -\frac{\pi}{4}$ or $= \sin \frac{7\pi}{4} = -\frac{\sqrt{2}}{2}$



II. Odd versus Even

Recall: Even: $f(-t) = f(t)$ (reflection across y-axis)
 Odd: $f(-t) = -f(t)$ (symmetric about the origin)

Even: $\cos(-t) = \cos t$
 $\sec(-t) = \sec t$

Odd: $\sin(-t) = -\sin t$
 $\tan(-t) = -\tan t$
 $\csc(-t) = -\csc t$
 $\cot(-t) = -\cot t$

III. Evaluating Trig Functions on a calculator to 4 decimals

Ex 4) $\sin\left(\frac{2\pi}{3}\right) \approx 0.8660$

Ex 5) $\csc\left(\frac{\pi}{8}\right) = \frac{1}{\sin\frac{\pi}{8}} = \boxed{X^{-1}} \approx 1.1071$

Ex 6) $\sec 30 = \frac{1}{\cos 30} = \boxed{X^{-1}} \approx 1.1547$