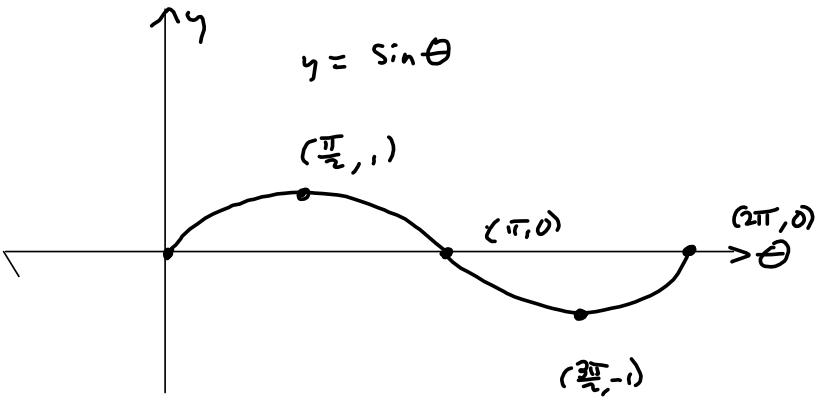
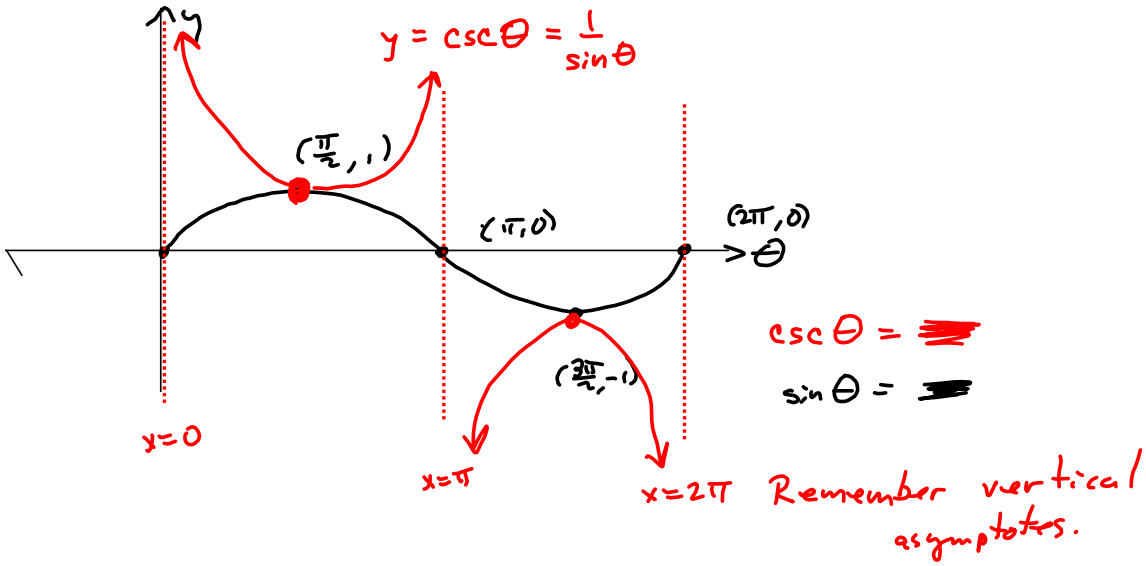


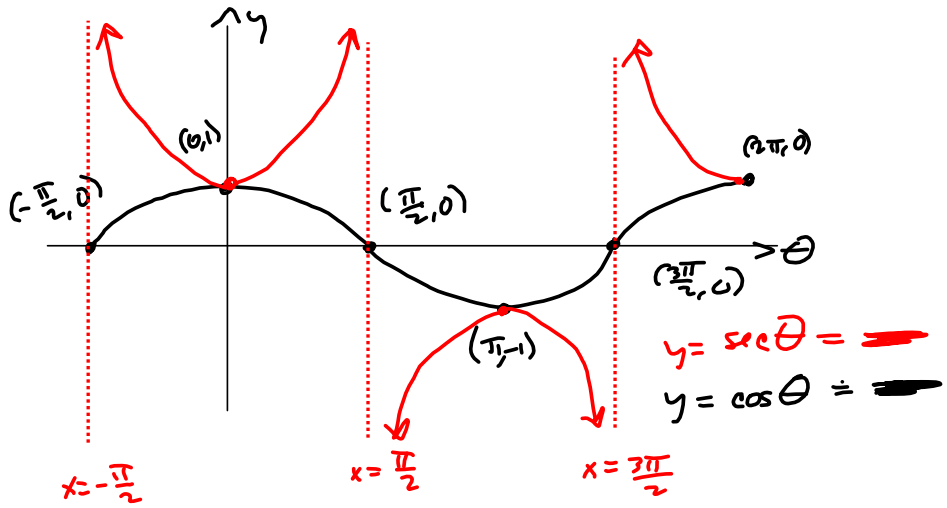


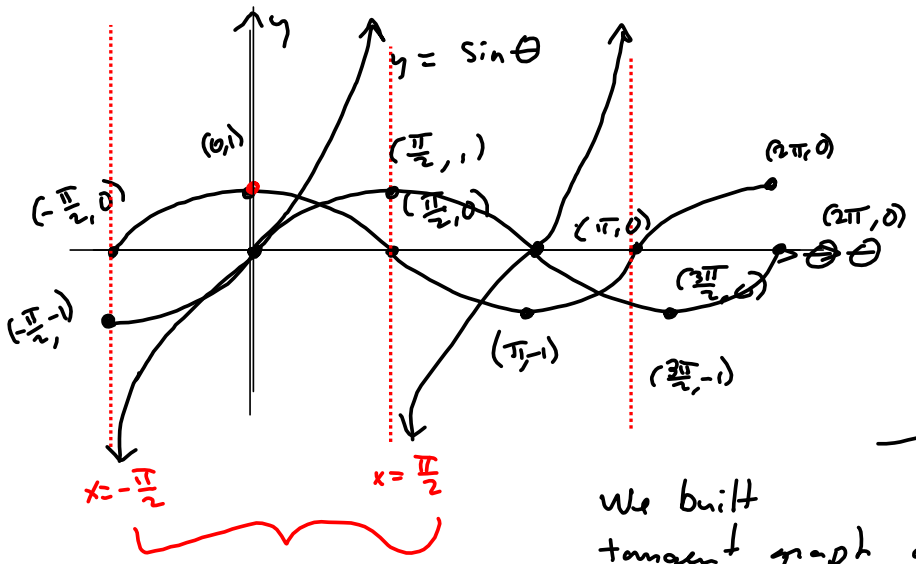
cscθ = [redacted]

sinθ = [redacted]

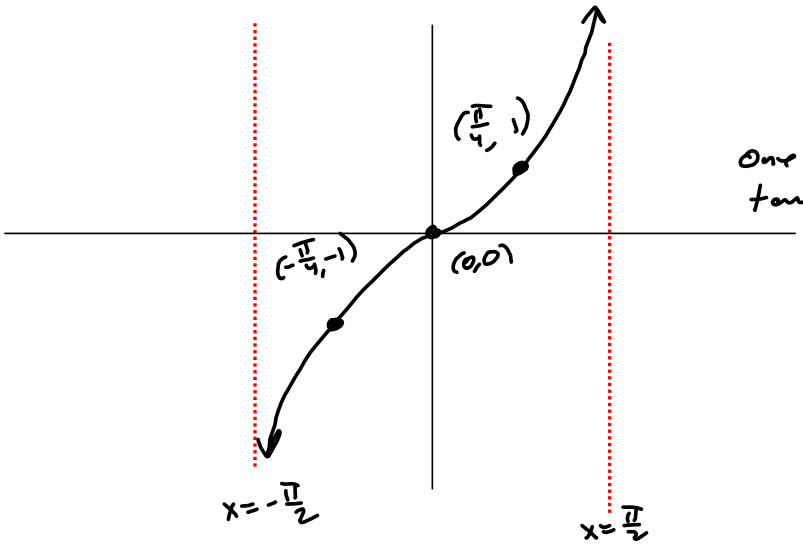
Remember vertical asymptotes.

Cosine and Secant graphs

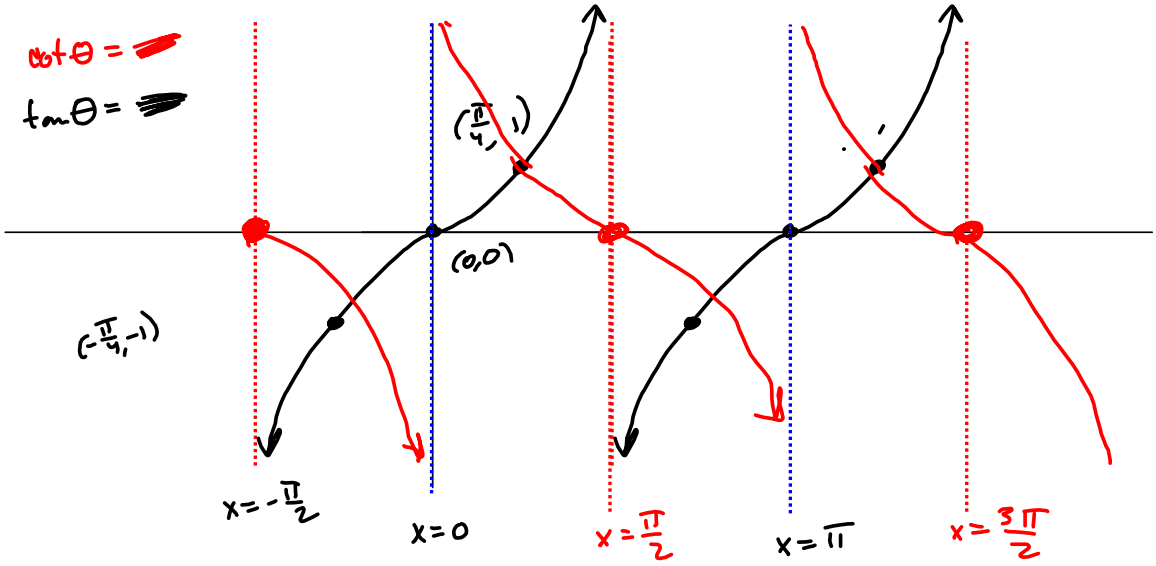




We built tangent graph as the quotient of sin θ & cos θ.

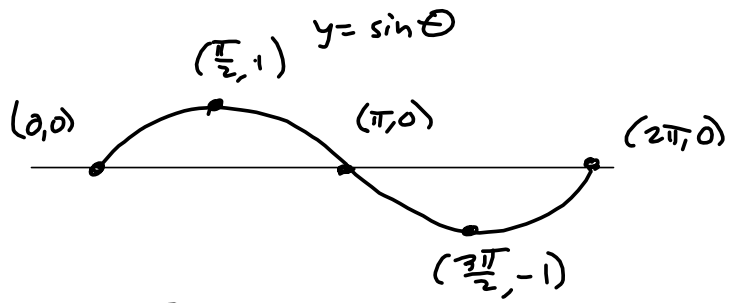


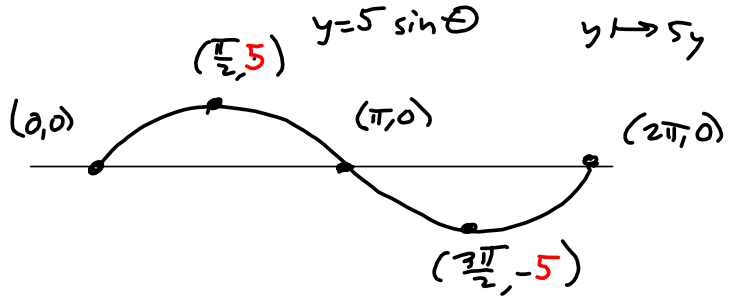
One Period of tangent

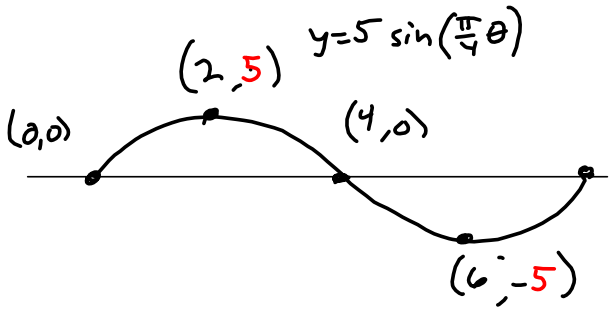

cot θ =
tan θ =
(π/4, 1)
(0,0)
(-π/4, -1)
x = -π/2
x = 0
x = π/2
x = π
x = 3π/2

$5\sin\left(\frac{\pi}{4}(x-11)\right)+1$

$= 5\sin\left(\frac{\pi}{4}x - \frac{11\pi}{4}\right)+1$ is how it's usually given if you factor the $\frac{\pi}{4}$ out of the argument.





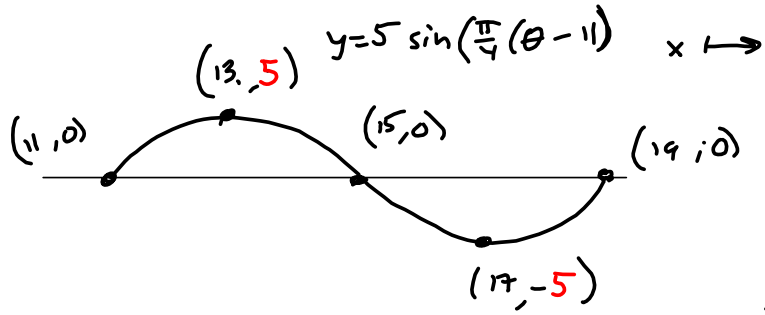


$\frac{\pi}{2}\cdot\frac{4}{11} = 2$

$\pi\cdot\frac{4}{11} = 4$

$\frac{3\pi}{2}\cdot\frac{4}{11} = 6$

$2\pi\cdot\frac{4}{11} = 8$



$\frac{\pi}{2}\cdot\frac{4}{11}=2$

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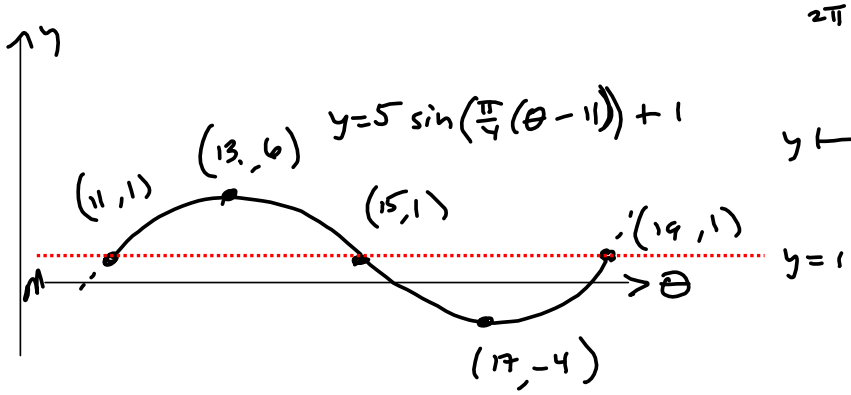
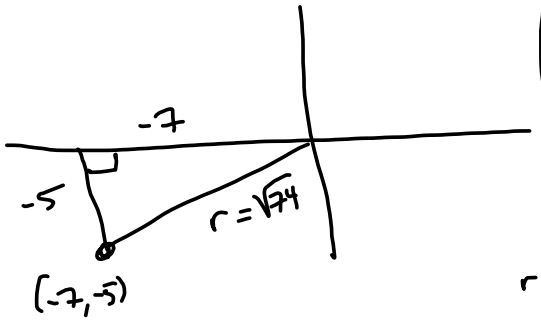
$\frac{3\pi}{2}\cdot\frac{4}{11}=6$

$2\pi\cdot\frac{4}{11}=8$



Find exact value of 6 trigs for the point $(-7,-5)$



$\sin\theta = \frac{-5}{\sqrt{74}}$ $\quad \csc\theta = \frac{\sqrt{74}}{-5}$

$\cos\theta = \frac{-7}{\sqrt{74}}$ $\quad \sec\theta = \frac{\sqrt{74}}{-7}$

$\tan\theta = \frac{5}{7}$ $\quad \cot\theta = \frac{7}{5}$

$r^2 = 5^2 + 7^2 = 25 + 49 = 74$

$2\overline{)74}$
37

J F M A M J J A S O N D

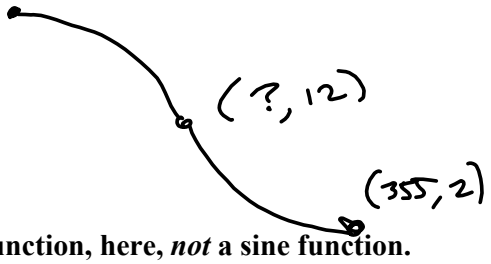
31 28 31 30 31 30 31 31 30 31 30 31

151 334

June 21st $-t = 172$ $151 + 21 = 172$ $334 + 21 = 355$

Dec 21st $- 355 = t$

t = DAY of the year.



I set you up to build a cosine function, here, *not* a sine function.

$\cos(\pi - \theta) = \sin\theta$ Cofunction identity

$2\cos\left(\frac{2\pi}{365}(t-172)\right) + 12$

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

(Cosine would've been better) $344 + 365 = 709$

$\sin\left(\pi - \frac{2\pi}{365}(t-172)\right)$ 344π

$= \sin\left(-\frac{2\pi}{365}t + \pi\cdot\frac{365}{365} + \frac{(172)2\pi}{365}\right)$

$= \sin\left(-\frac{2\pi}{365}t + \frac{789\pi}{365}\right)$

$= \sin\left(-\frac{2\pi}{365}\left(t - 789\right)\right)$ since Period = 365

$= \sin\left(-\frac{2\pi}{365}(t-344)\right)$

$= -\sin\left(\frac{2\pi}{365}(t-344)\right)$

Feel free to model as a cosine.