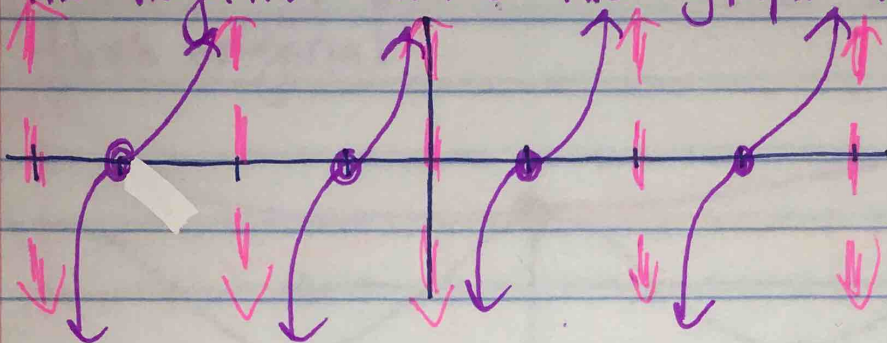


HM3- Graphing Sec, Csc, Cot

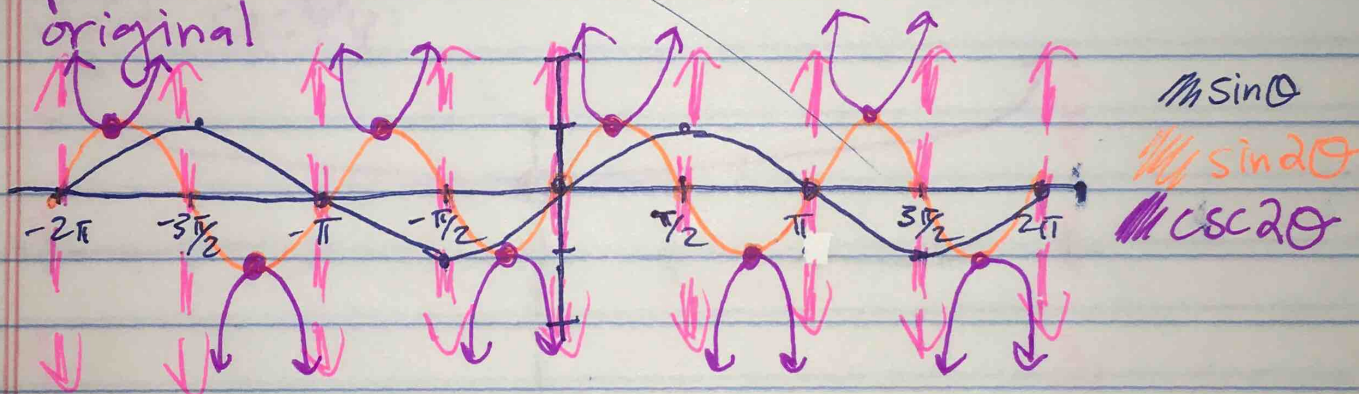
① $y = -\cot\theta$

The negative makes the graph flip over the middle

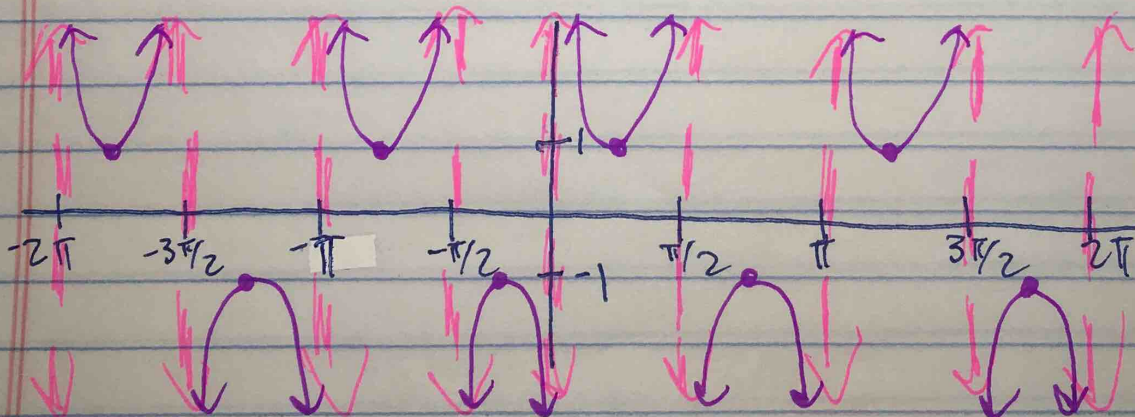


② $y = \csc 2\theta$

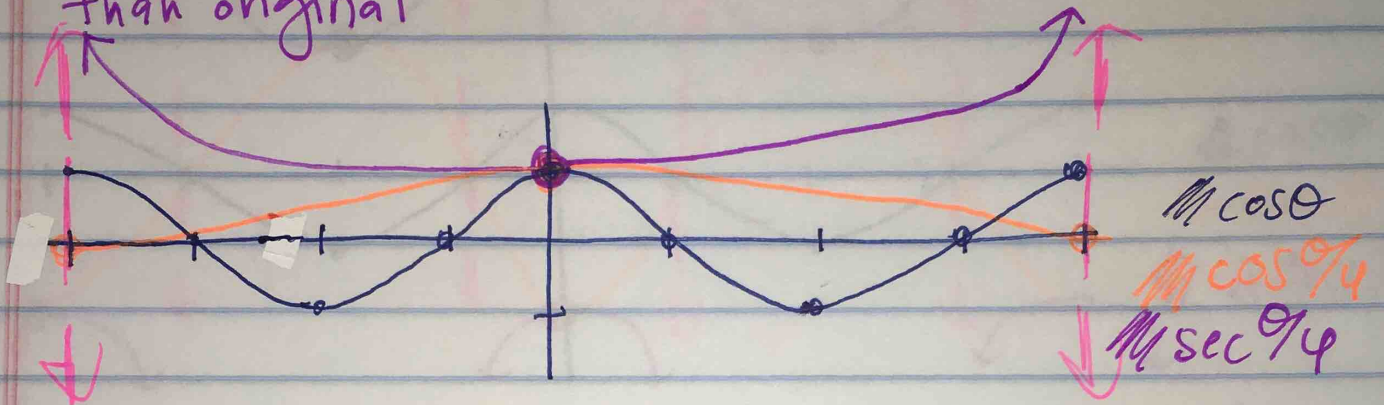
period = $2\pi/2 = \pi$ so it repeats twice as fast as original



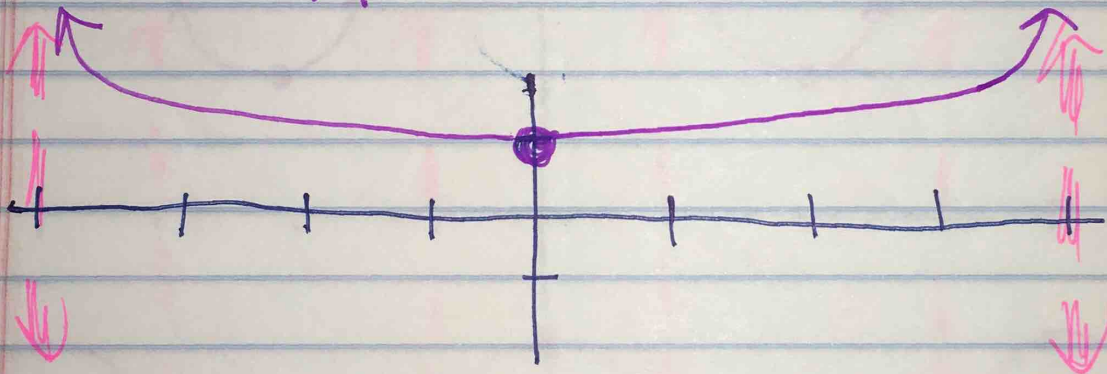
Just $\csc 2\theta$:



③ $y = \sec \theta/4$
 period = $2\pi/1/4 = 8\pi$ so it repeats 4 times slower than original

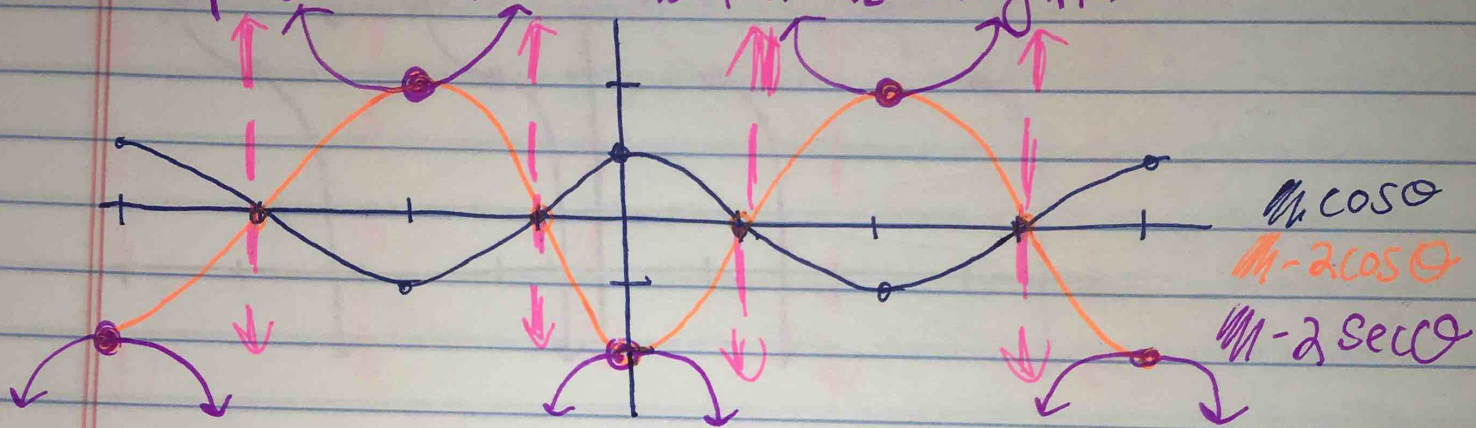


Just $\sec \theta/4$:

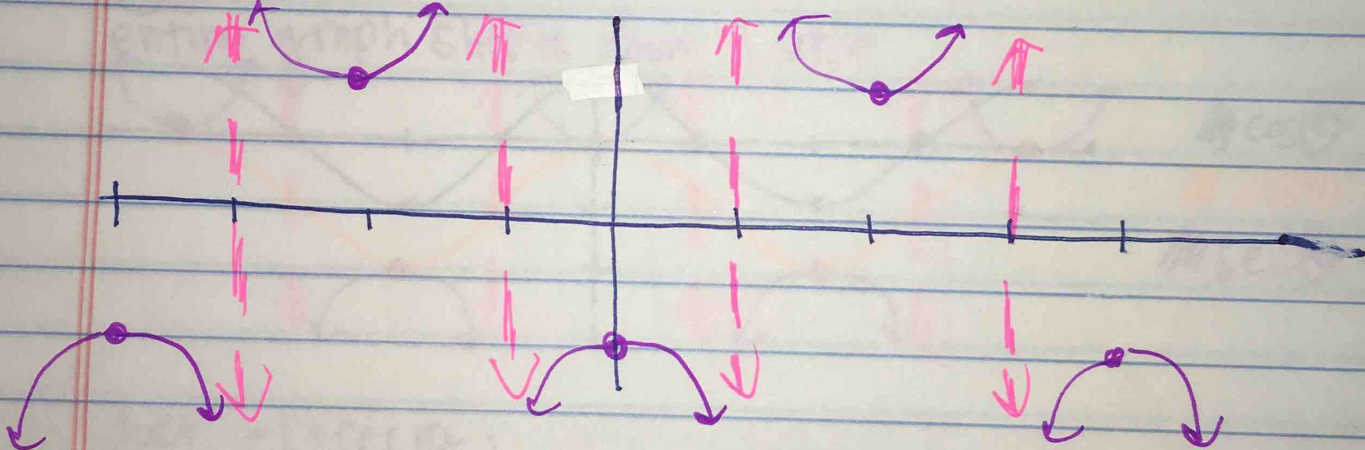


④ $y = -2\sec\theta$

- the negative reflects it over the middle
- amp = 2 so twice as tall as original

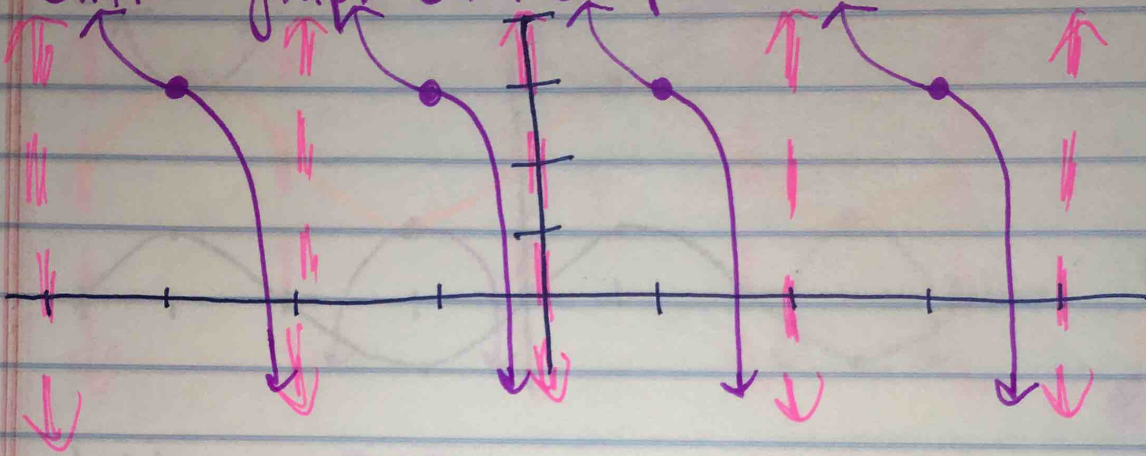


Just $-2\sec\theta$:



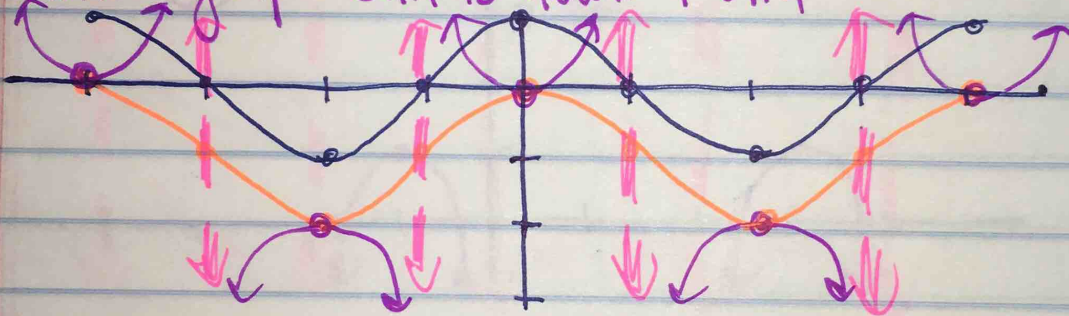
⑤ $y = 3 + \cot \theta$

entire graph shifts up 3 units



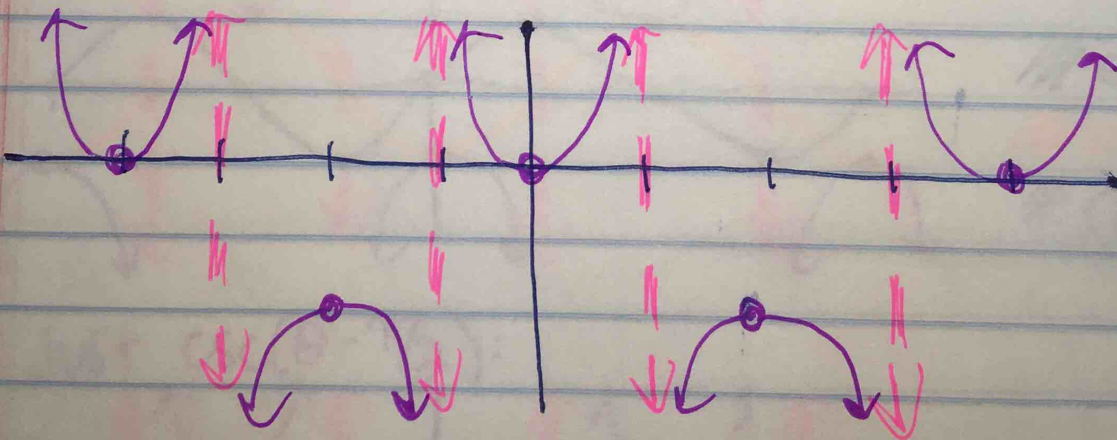
⑥ $y = -1 + \sec \theta$

entire graph shifts down 1 unit



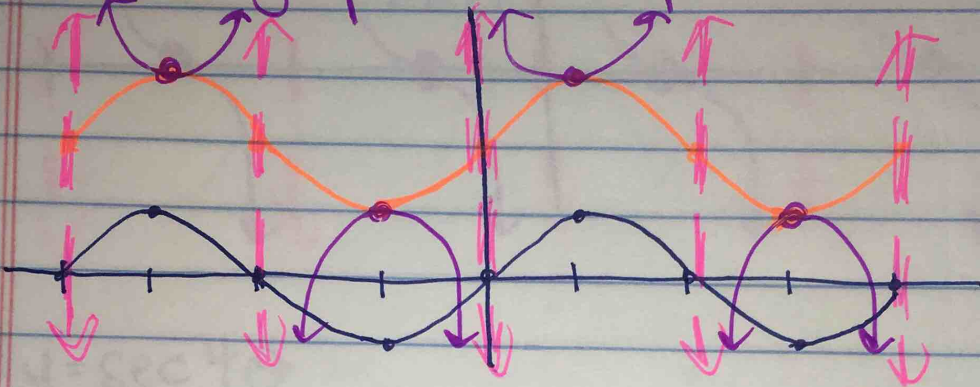
- $\backslash \cos \theta$
- $\backslash \cos \theta - 1$
- $\backslash \sec \theta - 1$

Just $-1 + \sec \theta$:



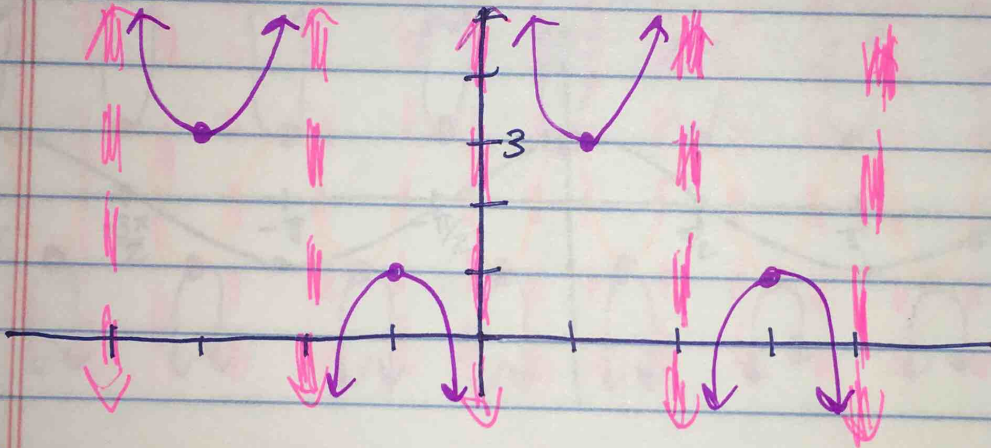
⑦ $y = \csc \theta + 2$

• entire graph shifts up 2 units



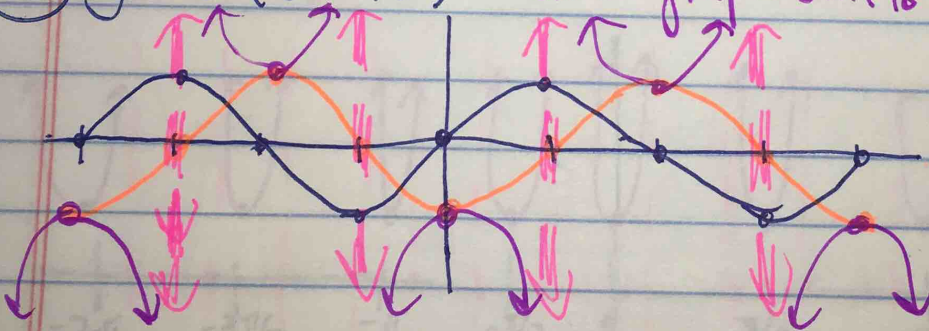
$\parallel \sin \theta$
 $\parallel \sin \theta + 2$
 $\parallel \csc \theta + 2$

Just $\csc \theta + 2$:



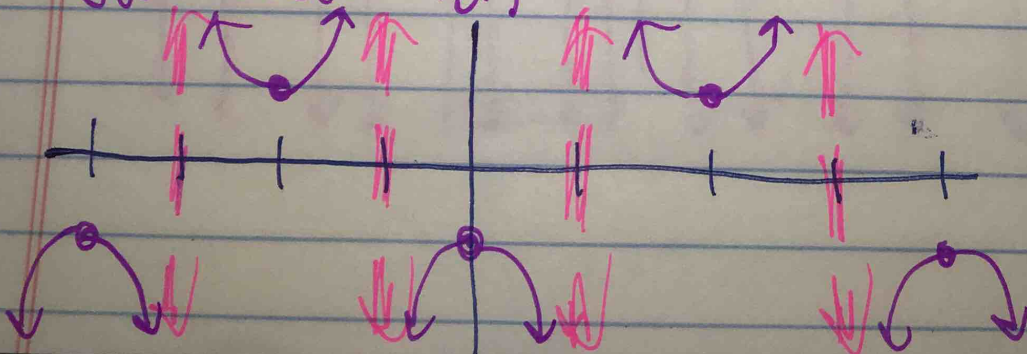
⑧ $y = \csc(\theta - \pi/2)$

• entire graph shifts right $\pi/2$ units (1 tick mark)

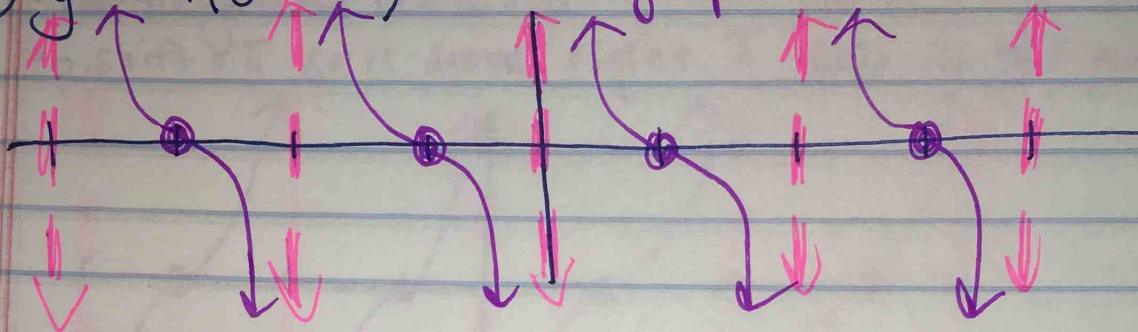


$\parallel \sin \theta$
 $\parallel \sin(\theta - \pi/2)$
 $\parallel \csc(\theta - \pi/2)$

Just $\csc(\theta - \pi/2)$:

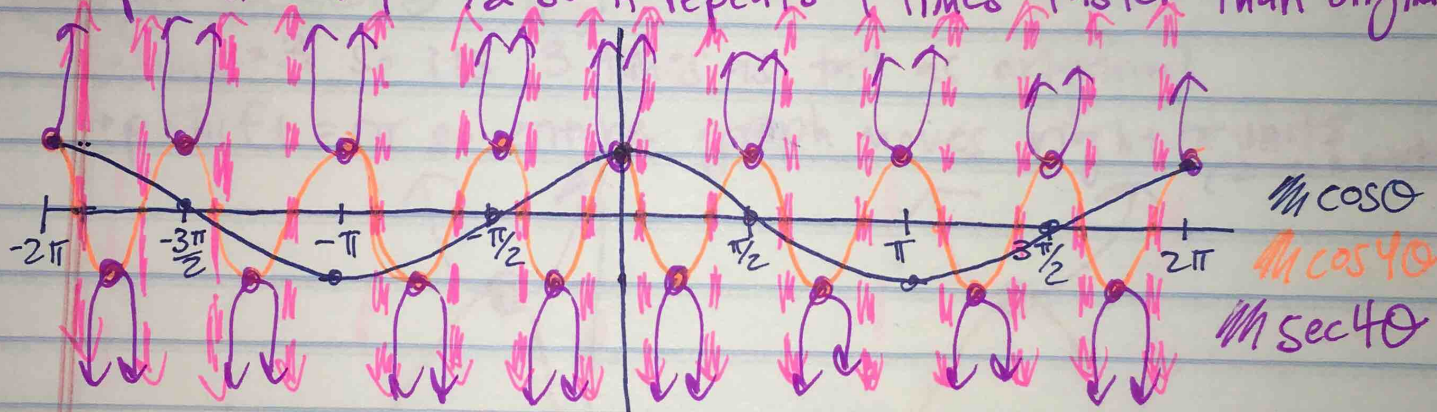


9) $y = \cot(\theta + \pi/2)$ entire graph shifts left $\pi/2$ (1 tick mark)

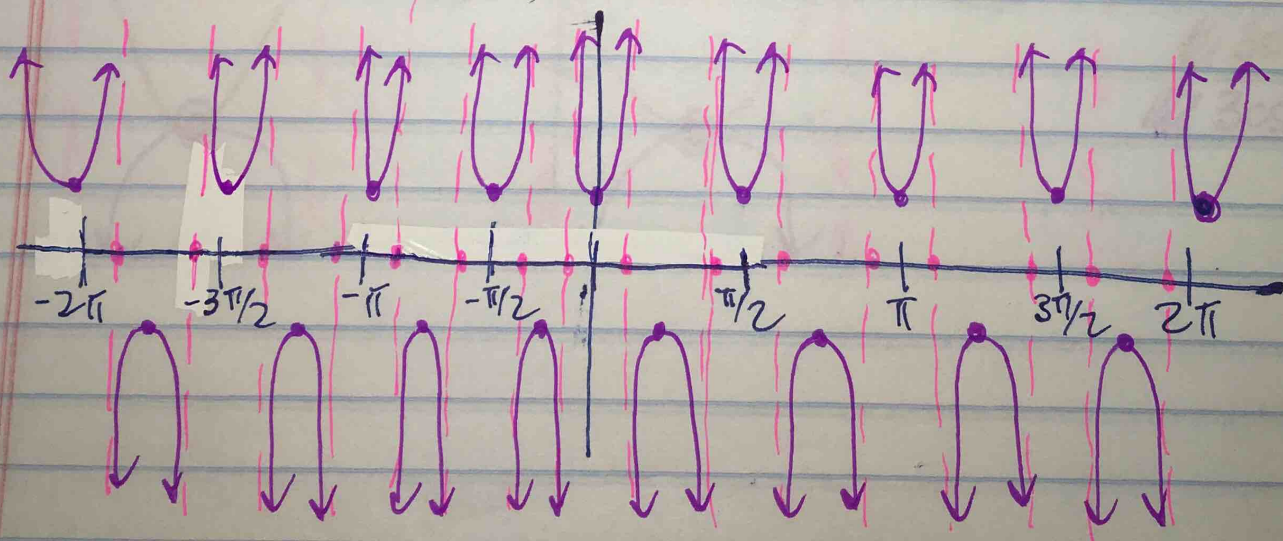


10) $y = \sec 4\theta$

• period = $2\pi/4 = \pi/2$ so it repeats 4 times faster than original

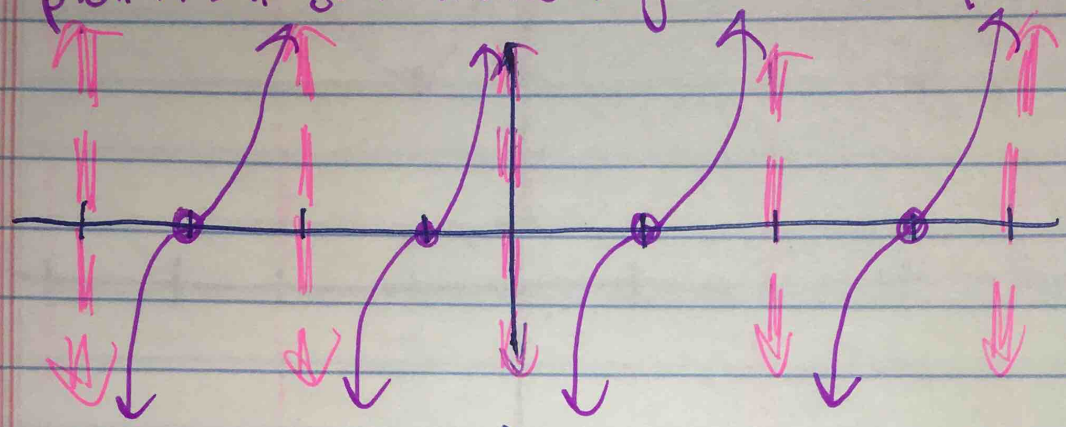


Just $\sec 4\theta$:



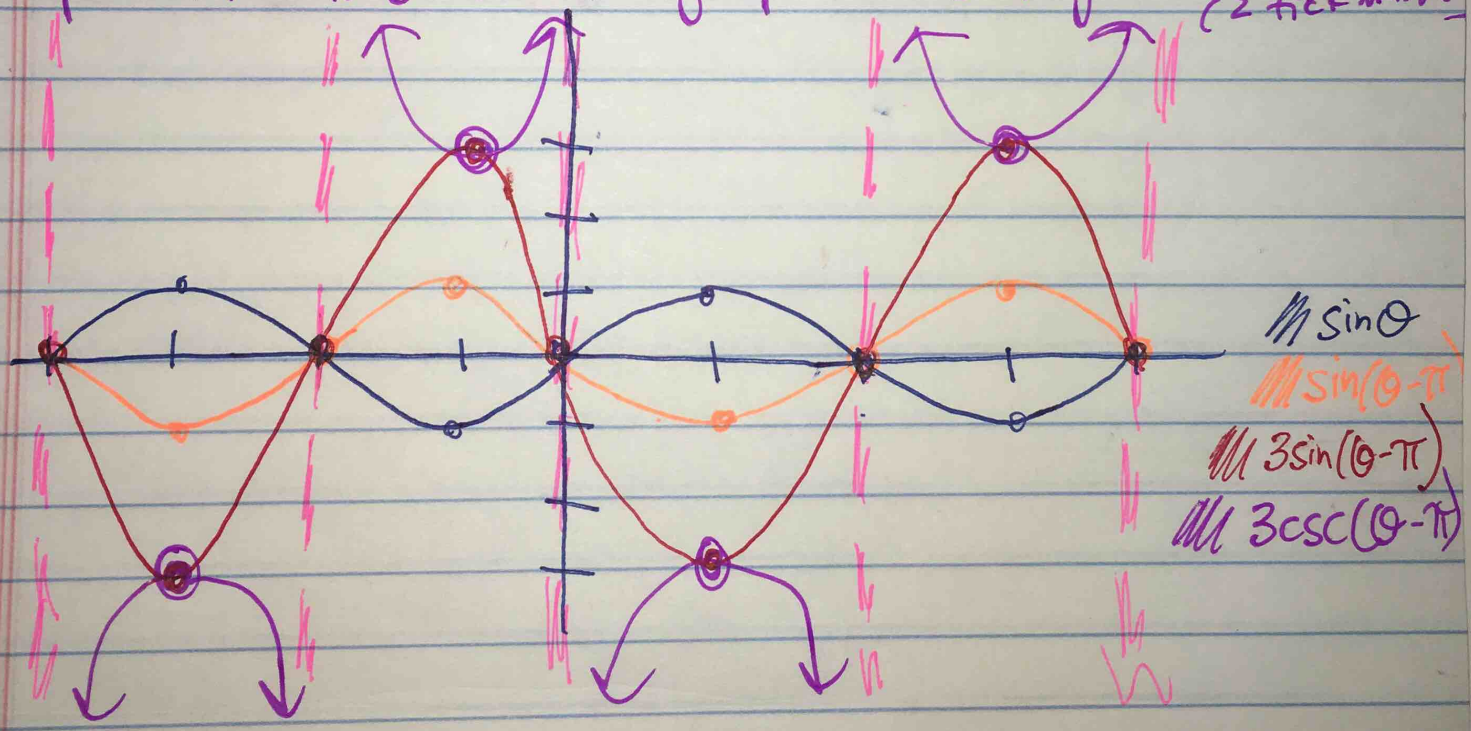
11) $y = -\cot(\theta - \pi)$

- the negative reflects it over the middle
- p. shift = π so it moves right π units (2 tick marks)



12) $y = 3\csc(\theta - \pi)$

- amp = 3 so its 3 times as tall as original
- p shift = π so entire graph moves right π units (2 tick marks)



JUST $3\csc(\theta - \pi)$

