6/19:

Midterm now on Friday June 21st
Final on July 8th

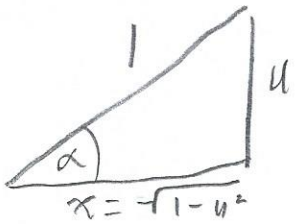
Continuing Ex 6 from yesterday

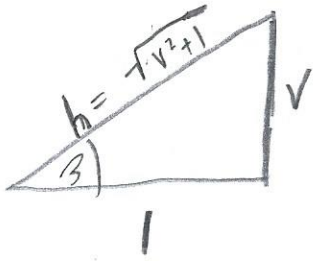
Ex 6i $\cos\left(\sin^{-1}(u) - \tan^{-1}(v)\right)$ Assume u and v are real pos. #'s

$\cos(\alpha - \beta) = \cos\alpha\cos\beta + \sin\alpha\sin\beta$

Let $\alpha = \sin^{-1}(u)$ and $\beta = \tan^{-1}(v)$

so $\sin(\alpha) = u$ and $\tan(\beta) = v$





$x^2 + u^2 = 1^2$

$x^2 = 1 - u^2$

$x = \sqrt{1-u^2}$

$v^2 + 1^2 = h^2$

$\sqrt{v^2+1} = h$

$\cos(\alpha) = \sqrt{1-u^2}$

$\sin(\beta) = \frac{v}{\sqrt{1+v^2}}$

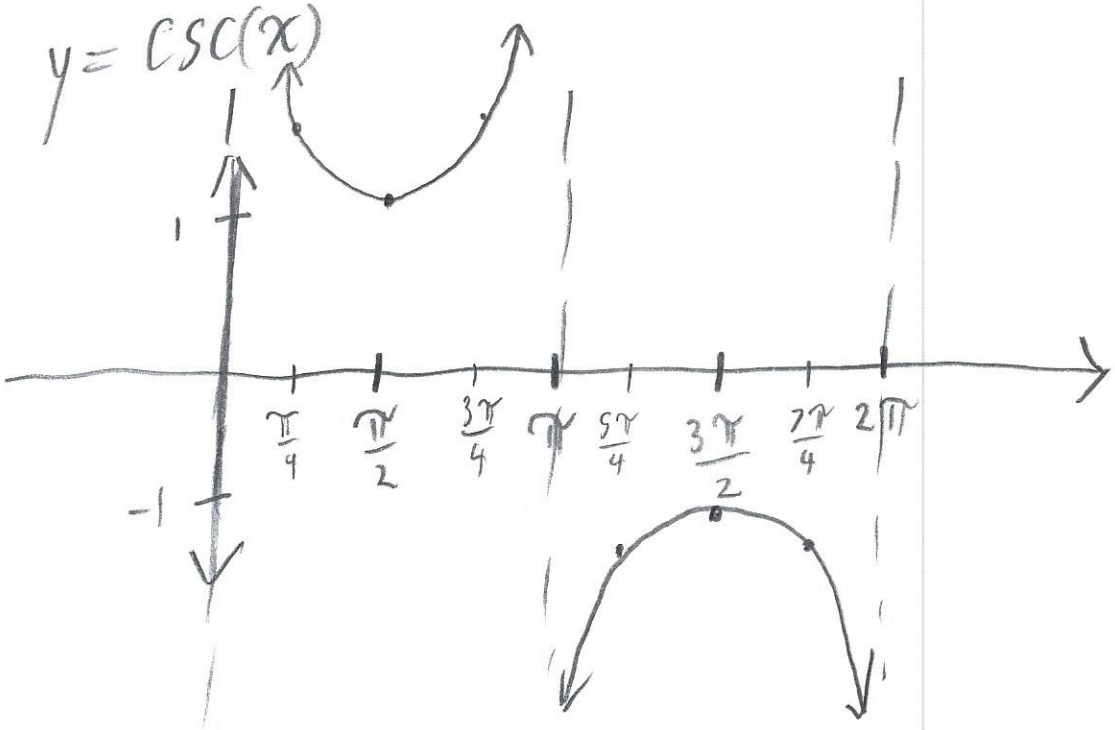
$\cos(\beta) = \frac{1}{\sqrt{1+v^2}}$

$$\cos(\alpha-\beta) = \sqrt{1-u^2}\left(\frac{1}{\sqrt{1+v^2}}\right) + u\left(\frac{v}{\sqrt{1+v^2}}\right)$$

$$= \frac{\sqrt{1-u^2}}{\sqrt{1+v^2}} + \frac{uv}{\sqrt{1+v^2}} = \boxed{\frac{\sqrt{1-u^2}+uv}{\sqrt{1+v^2}}} \quad (1)$$

Review Type stuff

Graphing sec and csc functions



Period: 2π

Asymptotes: $0, \pi, 2\pi$

where is $\sin(x) = 0$?

when $x = 0, \pi, 2\pi, \ldots$