

Warm Up 1/30

$$1) \cos^{-1}\left(-\frac{\sqrt{3}}{2}\right) = \frac{5\pi}{6} \quad 2) \tan^{-1}\left(\frac{\sqrt{3}}{3}\right) = \frac{\pi}{6}$$

$$3) \arcsin\left(-\frac{1}{2}\right) = -\frac{\pi}{6} \quad 4) \arccos(0) = \frac{\pi}{2}$$

$$5) \tan^{-1}(-\sqrt{3}) = -\frac{\pi}{3} \quad 6) \sin^{-1}(2) = \text{DNE}$$

4.6 day 2 ex 6+7

Goal: Be able to evaluate complex composite trigonometric functions

* Warning: must keep the domain of trig / inverse trig fun in mind

• When doing composite functions - work inside out & show all work unless its not on unit circle

ex) ① $\sin(\arcsin(\frac{1}{2}))$
 $\sin(\frac{\pi}{6})$
 $\frac{1}{2}$

② $\cos(\cos^{-1}(\frac{\sqrt{2}}{2}))$
 $\cos(\frac{3\pi}{4})$
 $-\frac{\sqrt{2}}{2}$

③ $\tan^{-1}(\tan(\frac{\pi}{2}))$
 DNE

④ $\sin^{-1}(\sin(\frac{4\pi}{3}))$
 $\sin^{-1}(-\frac{\sqrt{3}}{2})$
 $-\frac{\pi}{3}$

y+ ① $\cos(\arccos(\frac{1}{2}))$
 $\cos(\frac{\pi}{3}) = \frac{1}{2}$

② $\sin(\sin^{-1}(\frac{2}{5}))$
 $\frac{2}{5}$

③ $\tan(\arctan(-1))$
 $\tan(-\frac{\pi}{4}) = -1$

④ $\cos^{-1}(\cos(\frac{5\pi}{3}))$
 $\cos^{-1}(\frac{1}{2}) = \frac{\pi}{3}$

extension: composite w/ multiple trig fun's

ex] ① $\sin^{-1}(\cos \frac{3\pi}{2})$

$$\sin^{-1}(0)$$

$$0$$

② $\sin(\tan^{-1}(\sqrt{3}))$

$$\sin(\frac{\pi}{3}) =$$

$$\frac{\sqrt{3}}{2}$$

y+] ① $\tan^{-1}(\cos(\pi))$

$$\tan^{-1}(-1)$$

$$-\frac{\pi}{4}$$

② $\sin(\tan^{-1}(-1) + \cos^{-1}(-1))$

$$\sin(-\frac{\pi}{4} + \pi)$$

$$\sin(\frac{3\pi}{4}) = \frac{\sqrt{2}}{2}$$