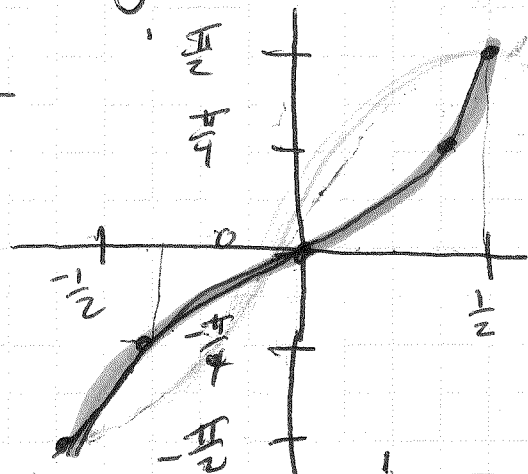


288: ~~18~~, 18, ²⁴30-36E, 37-40

19. $y = \sin^{-1} 2x$ $2x = \sin y$ $x = \frac{1}{2} \sin y$ $[-\frac{\pi}{2}, \frac{\pi}{2}]$

y	$-\frac{\pi}{2}$	$-\frac{\pi}{4}$	0	$\frac{\pi}{4}$	$\frac{\pi}{2}$
$x = \frac{1}{2} \sin y$	$-\frac{1}{2}$	$-\frac{\sqrt{2}}{4}$ <small>$\approx .35$</small>	0	$\frac{\sqrt{2}}{4}$	$\frac{1}{2}$

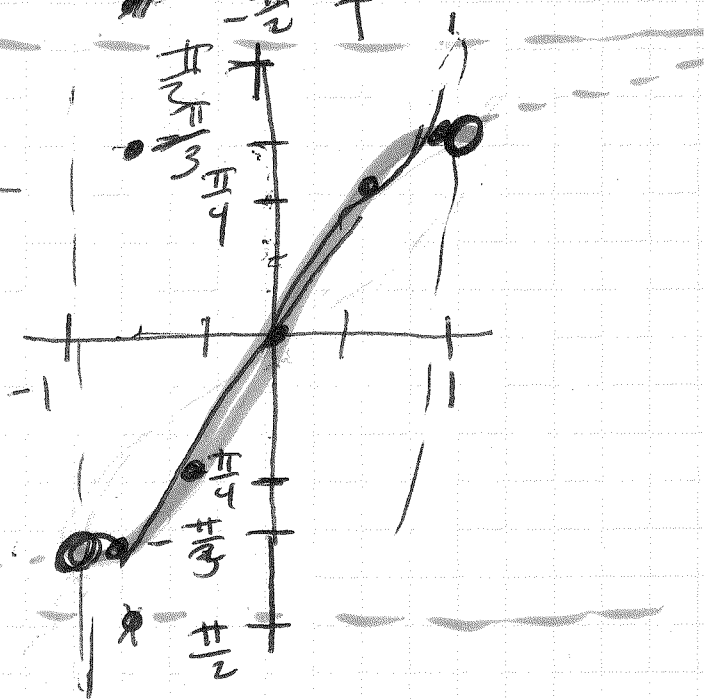


24 ~~18~~. $y = \tan^{-1} 3x$

$3x = \tan y$ $x = \frac{1}{3} \tan y$

y	$-\frac{\pi}{3}$	$-\frac{\pi}{4}$	0	$\frac{\pi}{4}$	$\frac{\pi}{3}$
$x = \frac{1}{3} \tan y$	$-\frac{\sqrt{3}}{3}$	$-\frac{1}{3}$	0	$\frac{1}{3}$	$\frac{\sqrt{3}}{3}$

.51 .33



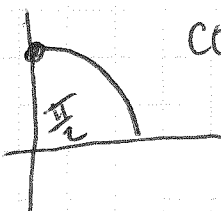
close to $\pm \frac{\pi}{2}$

30. $\sin^{-1}(\sin(\frac{\pi}{2})) = \frac{\pi}{2}$

32. $\cos^{-1}(\cos(\pi)) = \pi$

34. $\tan^{-1}(\tan(\frac{\pi}{3})) = \frac{\pi}{3}$

36. $\sin^{-1}(\cos(\frac{\pi}{2}))$ $u = \cos \frac{\pi}{2}$ $\sin^{-1}(u)$



$\cos \frac{\pi}{2} = 0$

$\sin^{-1} 0 = 0$

$$37. \sin\left(2\cos^{-1}\frac{\sqrt{2}}{2}\right) \quad u = 2\cos^{-1}\frac{\sqrt{2}}{2}$$

$$\frac{\sqrt{2}}{2} = 2\cos u \quad \frac{\sqrt{2}}{4} = \cos u$$

change course ↓

$$2\cos^{-1}\frac{\sqrt{2}}{2} = 2\left(\frac{\pi}{4}\right) = \frac{\pi}{2}$$

$$\boxed{\sin\left(\frac{\pi}{2}\right) = 1}$$

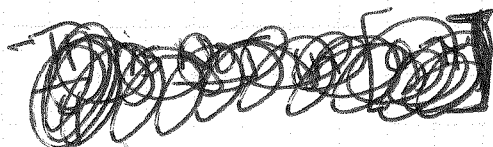


$$38. \sin(\tan^{-1}1 - \sin^{-1}1)$$

$$\sin\left(\frac{\pi}{4} - \frac{\pi}{2}\right) = \sin\left(-\frac{\pi}{4}\right) = -\frac{\sqrt{2}}{2}$$

$$39. \cos(\tan^{-1}1 - \sin^{-1}1)$$

$$\cos\left(\frac{\pi}{4} - \frac{\pi}{2}\right) = \cos\left(-\frac{\pi}{4}\right) = \frac{\sqrt{2}}{2}$$



$$40. \cos(\cos^{-1}0 + \sin^{-1}\frac{1}{2})$$

$$\cos\left(\frac{\pi}{2} + \frac{\pi}{6}\right) = \cos\left(\frac{4\pi}{6}\right) = \cos\left(\frac{2\pi}{3}\right) = -\frac{1}{2}$$