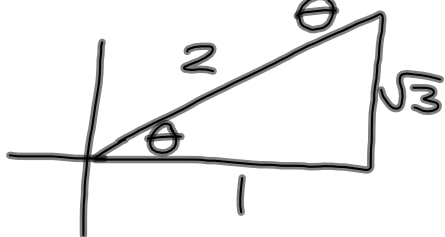


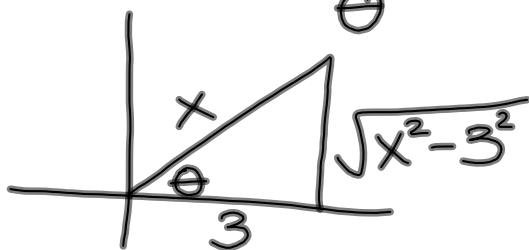
## Inverse Trig Functions, cont.

$$1. \cos(\sin^{-1} \frac{\sqrt{3}}{2}) = \cos \frac{\pi}{3} = \boxed{\frac{1}{2}}$$



$$2. \sin^{-1} \left[ \tan \left( \frac{-\pi}{4} \right) \right] = \sin^{-1}(-1) = \boxed{\frac{-\pi}{2}}$$

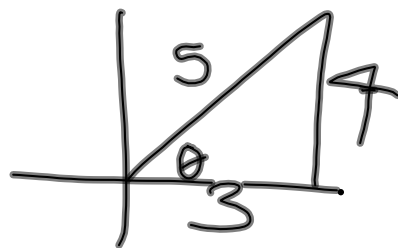
$$3. \tan(\cos^{-1} \frac{3}{x}) = \frac{\sqrt{x^2 - 9}}{3} \quad x > 0$$



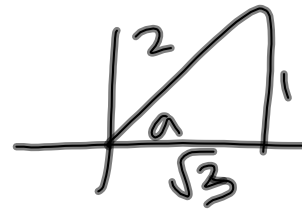
$$4. \sin(2 \cos^{-1} \frac{3}{5})$$

$$= 2 \sin \theta \cos \theta$$

$$= 2 \cdot \frac{4}{5} \cdot \frac{3}{5} = \boxed{\frac{24}{25}}$$

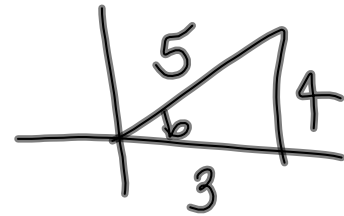


$$5. \sin\left(\underbrace{\sin^{-1}\frac{1}{2}}_a + \underbrace{\cos^{-1}\frac{3}{5}}_b\right)$$



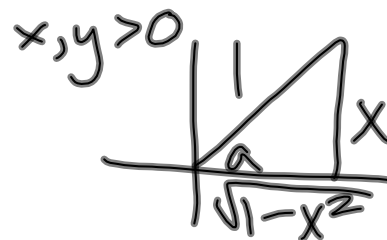
$$= \sin a \cos b + \cos a \sin b$$

$$= \frac{1}{2} \cdot \frac{3}{5} + \frac{\sqrt{3}}{2} \cdot \frac{4}{5}$$



$$= \boxed{\frac{3 + 4\sqrt{3}}{10}}$$

$$6. \cos\left(\underbrace{\sin^{-1}x}_a - \underbrace{\cos^{-1}y}_b\right)$$



$$= \cos a \cos b + \sin a \sin b$$

$$= (\sqrt{1-x^2})(y) + (x)(\sqrt{1-y^2})$$



$$= \boxed{y\sqrt{1-x^2} + x\sqrt{1-y^2}}$$

textbook?

$$39. \cos^{-1}(\cos(\frac{-\pi}{4})) = \frac{\pi}{4}$$

$$47. \tan(\cos^{-1}(\frac{\sqrt{2}}{2})) = 1$$

$$41. \sin^{-1}(\sin \frac{\pi}{5}) = \frac{\pi}{5}$$

$$53. \sin^{-1}(\sin \frac{7\pi}{6}) = -\frac{\pi}{6}$$

$$43. \tan^{-1}(\tan \frac{2\pi}{3}) = -\frac{\pi}{3}$$

$$55. \sin(\tan^{-1} \frac{a}{3}) = \frac{a}{\sqrt{a^2+9}}$$

$$45. \sin(\tan^{-1}(\frac{\sqrt{3}}{3})) = \frac{1}{2}$$

$$63. \cos(\sin^{-1} \frac{\sqrt{2}}{2} + \cos^{-1} \frac{3}{5})$$

$$= -\frac{\sqrt{2}}{10} = -\frac{1}{5\sqrt{2}} \text{ HW: } 25-53$$