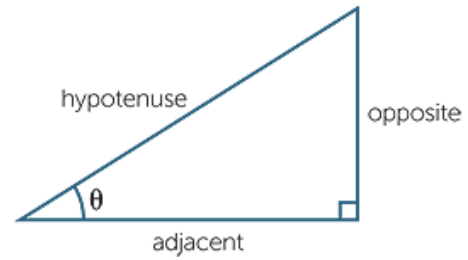**Math 229: Supplement on composition of inverses.** (Section 8.3)

Write all 6 trig functions based on the Right Triangle Definitions

Find a formula for each of the following compositions by constructing a right triangle.

1. $\sin\left(\cos^{-1}\left(\frac{x}{2}\right)\right)$ Right triangle:

$\sin\left(\cos^{-1}\left(\frac{x}{2}\right)\right)$ = _____

    a.   What is the restriction on x?

    b.   Check your formula by using x $= 0, 2$

$\sin\left(\cos^{-1}\left(\frac{x}{2}\right)\right)$ = _____

2. $\cos\left(\sin^{-1}\left(\frac{x}{3}\right)\right)$ Right triangle:

$\cos\left(\sin^{-1}\left(\frac{x}{3}\right)\right) = \underline{\hspace{4cm}}$

    a. What is the restriction on x?

    b. Check your formula by using x = -3, 0

$\cos\left(\sin^{-1}\left(\frac{x}{3}\right)\right) \overset{?}{=} \underline{\hspace{4cm}}$

3. $\sec\left(\tan^{-1}(x)\right)$ Right triangle:

$\sec\left(\tan^{-1}(x)\right) = $ _____

   a. What is the restriction on x?

   b. Check your formula by using x = 0

$\sec\left(\tan^{-1}(x)\right) \neq$ _____

4. $\csc\left(\sec^{-1}(x)\right)$

Right triangle:

$\csc\left(\sec^{-1}(x)\right) = $ _____

    a. What is the restriction on x?

    b. Check your formula by using x $= 2$

$\csc\left(\sec^{-1}(x)\right) = $ _____