

## Math-19 Homework #9

### Reading

Please read sections 7.1-7.5, then do all concept problems in the posted sections on webassign.

### Problems

- 1). Prove that the following is an identity:

$$\frac{1}{\csc x + \cot x} + \frac{1}{\csc x - \cot x} = 2 \csc x$$

- 2). : Write the following as a function of  $x$  with no trig functions:

$$\sin \left( \sec^{-1} \frac{1}{\sqrt{1-x^2}} + \csc^{-1} \sqrt{1+x^2} \right)$$

- 3). Write the following as a single sine function. Note that you can use approximate value (i.e., your calculator) for the various coefficient and angle calculation. Use 4 decimal places.

$$\cos \left( x + \frac{\pi}{3} \right) + \sin \left( x - \frac{\pi}{4} \right)$$

- 4). Find *all* possible solutions for  $x$ :

$$2 \sin^2 x + (\sqrt{3} - 4) \sin x - 2\sqrt{3} = 0$$

- 5). Find *all* possible solutions for  $x$ :

$$\sin 2x + \cos x = 0$$