

Please do the problems that you feel will help your group the most first (you don't have to do them in order). All handouts are available at <http://alex.knaust.info/pltlfall2011/>

1. Solve the following equations

(a)  $2 \cos x + 1 = 0$

(b)  $(3 \tan^2 x - 1)(\tan^2 x - 3) = 0$

(c)  $2 \sin^2 2x = 1$

(d)  $\sec x + \tan x = 1$

(e)  $\sec^2 x - \sec x = 2$

(f)  $2 \sin x + \csc x = 0$

2. Find the following values

(a)  $\arcsin(\sin(\frac{\pi}{4}))$

(b)  $\sin(\arcsin(\frac{1}{\sqrt{2}}))$

(c)  $\arctan(-\sqrt{3})$

(d)  $\arccos(\sin(\frac{\pi}{3}))$

3. Verify the following identities

(a)  $\tan^5 x = \tan^3 x \sec^2 x - \tan^3 x$

(b)  $\sin^4 x + \cos^4 x = 1$