Math 142 Name:_____
Homework 3 (Spring 2017)
Anderson, Randy

Show all work and use pencil only. Write your solutions up neatly on separate sheets of the engineering paper (use blank side only) and staple this sheet on top. Five (5) points will be deducted if your overall presentation is not neat, clear, and concise.

1. [4 points] Verify the identity.

$$\frac{\sec x-1}{\sec x+1}-\frac{\sec x+1}{\sec x-1}=-4\csc x\cot x$$

2. [4 points] Verify the identity.

$$\frac{\sin x}{1-\cot x}+\frac{\cos x}{1-\tan x}=\sin x+\cos x$$

3. [4 points] In the following figure $AB = CD = 1$ and $BC = 2$, find $\alpha+\beta$ and express your answer using radian measure. Do not use decimals. Give the exact value. (Hint: Find $\cos(\alpha+\beta)$).