

Name \_\_\_\_\_

Date \_\_\_\_\_

### Advanced Algebra

#### Assignment #16 Fundamental Trig Identities

For each problem, simplify the expression.

For some you are provided what it should simplify to. Show the steps how to transform one side to equal the other.

1)  $\cos(\theta) \cdot \tan(\theta)$

2)  $\csc(\theta) \cdot \tan(\theta)$

3)  $\sec(\theta) \cdot \cot(\theta) \cdot \sin(\theta)$

4)  $\csc(\theta) \cdot \tan(\theta) \cdot \cos(\theta)$

5)  $\sin^2(\theta) \cdot \sec(\theta) \cdot \csc(\theta)$  **to the  $\tan(x)$**

6)  $\cos^2(\theta) \cdot \csc(\theta) \cdot \sec(\theta)$  **to  $\cot(x)$**

7)  $\cot(\theta) + \tan(\theta)$  **to  $\csc(x) \cdot \sec(x)$**

8)  $\cot(\theta) \cdot \cos(\theta) + \sin(\theta)$  **to  $\csc(x)$**

9)  $\csc(\theta) - \sin(\theta)$  **to  $\cot(x) \cdot \cos(x)$**

10)  $\sec(\theta) - \cos(\theta)$  **to  $\sin(x) \cdot \tan(x)$**

11)  $\tan(\theta) * (\cot\theta * \cos\theta + \sin\theta)$  to **secx**

12)  $\cos\theta(\sec\theta + \cos\theta * \csc^2\theta)$  to **csc<sup>2</sup>x**

13)  $(1 + \sin\theta)(1 - \sin\theta)$  to **cos<sup>2</sup>x**

14)  $(\sec\theta - 1)(\sec\theta + 1)$  to **tan<sup>2</sup>x**

15)  $(\cos\theta - \sin\theta)^2$  to **1 - 2cosxsinx**

16)  $(1 - \tan\theta)^2$  to **sec<sup>2</sup>x - 2tanx**

17)  $(\tan\theta + \cot\theta)^2$  to **sec<sup>2</sup>x + csc<sup>2</sup>x**

18)  $(\cos\theta - \sec\theta)^2$  to **tan<sup>2</sup>x - sin<sup>2</sup>x**

19)  $\frac{\csc^2\theta - 1}{\cos\theta}$  to **cotxcscx**

20)  $\frac{1 - \cos^2\theta}{\tan\theta}$  to **sinxcosx**