Worksheet 14.1-14.5A worksheet Name _____ Assignment # ___

Simplify

1. $\csc^2\theta - \cot^2\theta$

2. $\dfrac{\tan(-\theta)}{\sec\theta}$

3. $\tan(-\alpha)\cos(-\alpha)$

4. $\cot^2 x(1+\tan^2 x)$

5. $\tan^2\theta - \dfrac{\sec^2\theta}{\csc^2\theta}$

6. $\dfrac{\tan x \csc x}{\sec x}$

7. $\sec\theta + \tan\theta$

8. $\dfrac{\sec\alpha}{\tan\alpha + \cot\alpha}$

9. $\sec^2 x - \tan^2 x$

10. $\csc^2 y + \sec^2 y$

11. $\cot^2 x - \csc^2 x$

12. $1 + \cot^2\alpha$

13. $\dfrac{1+\tan^2\theta}{\tan^2\theta}$

14. $\dfrac{1-\sin^2 t}{\csc^2 t}$

15. $\cot^2\theta\sin^2\theta + \tan^2\theta\cos^2\theta$

16. $\dfrac{1+\tan^2\theta}{1+\cot^2\theta}$

17. $\dfrac{\cot^2\theta - \csc^2\theta}{\cos^2\theta}$

Prove the identity.

18. $\cot x + \tan x = \csc x \cdot \sec x$

19. $\dfrac{\sin \alpha}{\csc \alpha + \cot \alpha} = 1 - \cos \alpha$

20. $\dfrac{\sin \theta}{1 + \cos \theta} + \dfrac{1 + \cos \theta}{\sin \theta} = 2 \csc \theta$

21. $\tan x - \cot x = \dfrac{\sin^2 x - \cos^2 x}{\sin x \cos x}$

Answers:

1. 1
2. $-\sin\theta$
3. $-\sin\alpha$
4. $\csc^2 x$
5. 0
6. 1
7. $\frac{1+\sin\theta}{\cos\theta}$
8. $\sin\alpha$
9. 1
10. $\csc^2 y \sec^2 y$
11. -1
12. $\csc^2\alpha$
13. $\csc^2\theta$
14. $\sin^2 t \cos^2 t$
15. 1
16. $\tan^2\theta$
17. $-\sec^2\theta$