

Math 3 Advanced
18.3 Pythagorean Identities

Simplify.

1. $\tan \theta \cdot \csc \theta$

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

3. $\sec^2 \theta - \tan^2 \theta$

4. $1 + \tan^2 \theta$

5. $1 + \cot^2 \theta$

6. $\sin^2 \theta + \cos^2 \theta$

7. $\sec^2 \theta - 1$

8. $1 - \sin^2 \theta$

9. $\frac{\sin^2 \theta}{1 - \cos^2 \theta}$

10. $\frac{\cos^2 \theta}{1 - \sin^2 \theta}$

11. $\frac{\tan^2 \theta}{\sec^2 \theta - 1}$

12. $\frac{\cot^2 \theta}{\csc^2 \theta - 1}$

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

14. $\frac{\csc^2 \theta}{1 + \cot^2 \theta}$

15. $\frac{\sin^2 \theta + \cos^2 \theta}{\cos^2 \theta}$

16. $\frac{\cos^2 \theta + \sin^2 \theta}{\sin^2 \theta}$

Answer List

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|---------------------|---------------------|
| 1. $\sec \theta$ | 2. 1 |
| 3. 1 | 4. $\sec^2 \theta$ |
| 5. $\csc^2 \theta$ | 6. 1 |
| 7. $\tan^2 \theta$ | 8. $\cos^2 \theta$ |
| 9. 1 | 10. 1 |
| 11. 1 | 12. 1 |
| 13. 1 | 14. 1 |
| 15. $\sec^2 \theta$ | 16. $\csc^2 \theta$ |

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