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TRIGONOMETRY SIMPLIFICATIONS--LESSON A

Simplify the following 10 expressions. Consider only angles where the functions actually exist. Obtain a message by placing in the space provided the letter that corresponds to each answer.

1. $\dfrac{\sec^2\theta - \tan^2\theta}{\sin^2\theta + \cos^2\theta} =$

2. $\dfrac{\tan\theta \sec\theta}{\csc\theta \tan\theta \sec\theta - 1} =$

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

4. $\sin\theta \cos\theta \sec\theta \csc\theta =$

5. $\dfrac{\sin^2\theta + \cos^2\theta}{\sec\theta} =$

6. $\dfrac{\sin^2\theta + 2\sin\theta\cos\theta + \cos^2\theta}{\sin^2\theta - \cos^2\theta} =$

7. $\dfrac{\sin\theta\cos^2\theta + \sin^3\theta}{\sin\theta + \cos\theta} =$

8. $\dfrac{\sec^2\theta - \tan^2\theta}{\cot\theta} =$

9. $\dfrac{\tan\theta\csc^2\theta - \tan\theta\cot^2\theta}{\sin^2\theta\sec\theta\csc\theta\cot\theta} =$

10. $\dfrac{\sin^2\theta - \sin\theta\cos\theta - 2\cos^2\theta}{\sin\theta + \cos\theta} =$

1	2	3	4	5	6	7	8	9	10

G = $\dfrac{\sin\theta}{\sin\theta + \cos\theta}$ U = 0 D = $\sin\theta - 2\cos\theta$ H = $\csc\theta$

E = $\dfrac{1 - \cos\theta}{\sin\theta}$ T = 1 I = $\cos\theta$ O = $\tan\theta$

A = $\tan^2\theta$ N = $\sin\theta$ S = $\dfrac{\sin\theta + \cos\theta}{\sin\theta - \cos\theta}$ R = 2

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TRIGONOMETRY SIMPLIFICATIONS—LESSON B

Each of the following expressions on the left can be simplified and matched to an answer on the right. In front of each of the eight problems place the letter that indicates its simplified form. Letters may be used more than once.

_____ 1. $\frac{\sin\theta\cos\theta + \sin^2\theta\cos\theta + \cos^3\theta}{\cos\theta}$

_____ 2. $\frac{(\cos\theta + 1)(\tan\theta + \sec\theta)}{\sec\theta + 1}$

_____ 3. $\frac{\cot^2\theta - 9}{\cot^2\theta - 2\cot\theta - 3}$

_____ 4. $\frac{\sec^2\theta + \csc^2\theta}{\csc^2\theta\sec^2\theta}$

_____ 5. $\frac{\cos^2\theta\sin\theta - 16\sin\theta}{\sin^2\theta\cot\theta + 4\sin\theta}$

_____ 6. $\frac{\sec^2\theta - 6\cos\theta\sec\theta - 16\cos^2\theta}{2\sec\theta\cos\theta + 4\cos^2\theta}$

_____ 7. $\frac{\sin\theta\tan\theta\csc\theta - 4\tan\theta\csc\theta}{\sec\theta}$

_____ 8. $2 - \frac{9 - 3\sin\theta - 2\sin^2\theta}{\sin\theta + 3}$

a. 1

b. $\sin\theta$

c. $\cos\theta - 4$

d. $\sin\theta - 4$

e. $\sin\theta + 1$

f. $\frac{1}{2\cos^2\theta} - 4$

g. $\cos\theta + 1$

h. $\sin^2\theta + 4$

i. $\frac{\cos\theta + 3\sin\theta}{\cos\theta + \sin\theta}$

j. $\frac{3\sin\theta + 2\cos\theta}{\sin\theta + 1}$

k. $2\sin\theta - 1$

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PROVING TRIGONOMETRY IDENTITIES

Prove each identity by transforming the left side of the equation into one of the expressions listed on the right. After you finish, the letters that correspond to the correct answers will form a word.

1. $\frac{\cos\theta}{1-\sin\theta} + \frac{1-\sin\theta}{\cos\theta} =$

2. $\frac{\csc^3\theta - \csc\theta\cot^2\theta}{\csc\theta} =$

3. $1 - \frac{\cot^2\theta + \cot\theta}{\cot^2\theta - 1} + 3 =$

4. $\frac{\sin^3\theta - \cos^3\theta}{1 - \sin^2\theta\cos^2\theta} =$

5. $\sec\theta + 1 + \frac{1 - \tan^2\theta}{\sec\theta - 1} =$

6. $\frac{\cos\theta + \cot\theta\cos\theta + \sin\theta}{\csc\theta} =$

7. $\frac{\cot\theta + 5}{\cot\theta\sec\theta + 5\sec\theta} =$

8. $\frac{\sec\theta\tan^2\theta\sin\theta}{\cot\theta\cos\theta + \sin\theta} =$

9. $1 + \frac{2\sin\theta}{\sin\theta - 1} + \frac{2\sin\theta\cos\theta - 5\sin\theta - 2\cos\theta + 1}{\sin^2\theta - 1} =$

E = $2\sec\theta$

R = $\tan\theta$

A = $\sin\theta$

X = 1

T = $3\cot\theta - 4$

C = $\frac{3\cos\theta - 4\sin\theta}{\cos\theta - \sin\theta}$

E = $\frac{\sin\theta - \cos\theta}{1 - \sin\theta\cos\theta}$

A = $1 + \sin\theta\cos\theta$

L = $\frac{\cos\theta}{1 - \cos\theta}$

N = $\cos\theta + 1$

O = $\tan\theta + \sin\theta$

L = $1 + \sin\theta\cos\theta$

N = $\sec\theta$

E = $\cos\theta$

R = $\sin\theta + \cos^2\theta$

N = $\sin\theta\tan^3\theta$

T = $\frac{3\sin\theta + 2\cos\theta}{\sin\theta + 1}$

S = $\frac{3\sin\theta - 2\cos\theta}{\sin\theta - 1}$

1	2	3	4	5	6	7	8	9