

Simplifying Trig Expressions
Matching WS

Name _____

Simplify each of the following expressions using substitution of basic trig identities.
 Match each number with its simplified form. Place the letter of the simplified form above the question number **to discover something to look forward to ...**

Hint: the easiest/shortest are #3, 4, 6, 7, 8 and the toughest/longest are #1, 2, 5 ... work them in any order you want ☺

1	$\frac{1}{\cot \theta} + \frac{1}{\tan \theta}$	I	$\cos \theta$
2	$\frac{\csc \theta}{\tan \theta + \cot \theta}$	T	$\cos^4 \theta$
3	$\frac{\sin^2 \theta}{\sec^2 \theta - 1}$	H	$\sec \theta$
4	$\cos^2 \theta - \sin^2 \theta \cos^2 \theta$	Y	$1 + \sin \theta$
5	$\frac{\tan \theta}{\csc \theta} + \frac{\sin \theta}{\tan \theta}$	D	$\sin \theta - 1$
6	$\frac{1 - \csc \theta}{\csc \theta}$	B	$\sec \theta \csc \theta$
7	$\sin^2 \theta \cot^2 \theta + \sin^2 \theta$	A	1
8	$\frac{\cos^2 \theta}{1 - \sin \theta}$	R	$\cos^2 \theta$

Answer:

1 2 3 4 5 6 7 8

Simplifying Trig Expressions – Matching WS – Hints

1	step 1	reciprocal sub
	step 2	quotient sub
	step 3	get common denom
	step 4	add fractions
	step 5	Pythagorean sub
	step 6	reciprocal sub

2	step 1	change all to sine and cosine
	step 2	get common denom
	step 3	add fractions
	step 4	Pythagorean sub
	step 5	multiply by reciprocal
	step 6	simplify

3	step 1	Pythagorean sub
	step 2	quotient sub
	step 3	multiply by reciprocal
	step 4	simplify

4	step 1	factor out GCF
	step 2	Pythagorean sub
	step 3	properties of exponents

5	step 1	quotient & reciprocal subs
	step 2	multiply by reciprocal
	step 3	get common denom
	step 4	add fractions
	step 5	Pythagorean sub
	step 6	reciprocal sub

6	step 1	separate into two fractions
	step 2	reciprocal sub

7	step 1	factor out GCF
	step 2	Pythagorean sub
	step 3	reciprocal sub
	step 4	simplify

8	step 1	multiply top & bottom by “conjugate” of denom
	step 2	Pythagorean sub
	step 3	simplify