# USING TRIGONOMETRIC IDENTITIES TO DECODE A SECRET MESSAGE

**Directions:** *Simplify the following expressions and match them with their solution. Try to do all of the work in your head! Use the results to decode the message at the bottom of the page.*

1. $\sec^2 x - 1$
2. $\dfrac{1}{\sin x}$
3. $\sin x \cot x$
4. $\dfrac{\sin^2 x}{1+\cos x}$
5. $1+\tan^2 x$
6. $\csc^2 x - \cot^2 x$
7. $\dfrac{\cos^2 x}{1+\sin x}$
8. $\dfrac{\sin x + \cos x}{\sin x \cos x}$
9. $\dfrac{\cot^2 x}{\csc x - 1}$
10. $\dfrac{1}{\tan x}$
11. $\dfrac{1}{\cot x}$
12. $\dfrac{\cos x}{\cot x}$
13. $\cot^2 x + 1$
14. $\dfrac{1}{\cos x}$
15. $\dfrac{\cot^2 x}{\csc x + 1}$
16. $\sin^2 x + \cos^2 x + 1$
17. $1-(\sec^2 x - \tan^2 x)$
18. $\csc^2 x - 1$
19. $1-\sin^2 x$
20. $\dfrac{\tan^2 x}{\sec x - 1}$
21. $\dfrac{\tan^2 x}{\sec x + 1}$
22. $-(\sin^2 x + \cos^2 x)$
23. $\dfrac{\sin x - \cos x}{\sin x \cos x}$
24. $1-\sec^2 x$
25. $1-\csc^2 x$
26. $3(\sin^2 x + \cos^2 x)$

A. $\csc x$
B. $1$
C. $\sec x + \csc x$
D. $\sin x$
E. $\sec x$
F. $2$
G. $-1$
H. $\cos^2 x$
I. $3$
J. $\csc x - 1$
K. $\sec x - 1$
L. $\cot^2 x$
M. $\sec x - \csc x$
N. $\sec x + 1$
O. $0$
P. $\tan^2 x$
Q. $\cos x$
R. $-\cot^2 x$
S. $\sec^2 x$
T. $1-\sin x$
U. $\csc x + 1$
V. $\tan x$
W. $1-\cos x$
X. $-\tan^2 x$
Y. $\cot x$
Z. $\csc^2 x$

**SECRET MESSAGE:**

4-19-2-7 26-5 2 1-14-25-16-14-8-7
5-3-9-2-25-14?

2 20-14-25-12 4-19-17
20-14-11-14-25 23-2-21-14-5
23-26-5-7-2-21-14-5!