

Calculus Worksheet: Derivatives

Name: _____ Class: _____ Date: _____

Instructions: Choose the correct derivative for each function. Assume x is in radians.

1. $y = 3/x + 5 \sin x$

- A. $-3/x^2 + 5 \cos x$
- B. $3/x^2 + 5 \cos x$
- C. $-3/x^2 - 5 \cos x$
- D. $-3/x + 5 \cos x$

2. $y = \sqrt{x} \sec x + 3$

- A. $\sec x/(2\sqrt{x}) + \sqrt{x} \sec x \tan x$
- B. $\sec x/(2\sqrt{x}) - \sqrt{x} \sec x \tan x$
- C. $1/(2\sqrt{x}) + \sqrt{x} \sec x \tan x$
- D. $\sec x/\sqrt{x} + \sqrt{x} \sec x \tan x$

3. $y = x^2 \cot x - 1/x^2$

- A. $2x \cot x + x^2 \csc^2 x + 2/x^3$
- B. $2x \cot x - x^2 \csc^2 x - 2/x^3$
- C. $2x \cot x - x^2 \csc^2 x + 2/x^3$
- D. $x^2(-\csc^2 x) - 2/x^3$

4. $g(x) = \cos x / \sin^2 x$

- A. $-1/\sin x - 2\cos^2 x/\sin^3 x$
- B. $-1/\sin x + 2\cos^2 x/\sin^3 x$
- C. $-\csc x (\csc^2 x + \cot^2 x)$
- D. $-\sin x/\sin^2 x - 2\cos x/\sin^3 x$

5. $y = (\sin x + \cos x) \sec x$

- A. $\sin x + \cos x$
- B. $\sec^2 x$
- C. $\sec x - \tan x + \sin x \sec x \tan x$
- D. $\sec x + \tan x$