

Class prep quiz on section 3.3, Stewart's Calculus (8th ed.)

1. Which of the following derivatives is **incorrect**?

(a) $\frac{d}{dx}(\tan x) = -\sec^2 x$ (b) $\frac{d}{dx}(\cot x) = -\csc^2 x$
(c) $\frac{d}{dx}(\csc x) = -\csc x \cot x$ (d) $\frac{d}{dx}(\sec x) = \sec x \tan x$

2. Let $f(x) = \frac{\sin x}{\cos x} - \frac{\cos x}{\sin x}$. What is $f'(x)$?

(a) 1 (b) $\sec^2 x - \csc^2 x$ (c) $\sec^2 x \csc^2 x$ (d) $\csc^2 x - \sec^2 x$

3. Let $g(x) = \sqrt[3]{x} \cos x$. What is $g'(x)$?

(a) $\frac{\cos x}{3\sqrt[3]{x}} + \sqrt[3]{x} \sin x$ (b) $\frac{\cos x}{3\sqrt[3]{x}} - \sqrt[3]{x} \sin x$
(c) $\frac{\cos x}{3x^{2/3}} - \sqrt[3]{x} \sin x$ (d) $\frac{\cos x}{3x^{2/3}} + \sqrt[3]{x} \sin x$

4. Find the equation of the tangent line to $y = 13 \sin x - 11$ at $x = 7$.

(a) $y - 7 = (13 \cos 7)(x - (13 \sin 7 - 11))$
(b) $y - (13 \sin 7 - 11) = (13 \cos 7)(x - 7)$
(c) $13 \cos 7$
(d) $y - (13 \cos 7) = (13 \sin 7 - 11)(x - 7)$