

This is a fake quiz, this is only a fake quiz. In the event of an actual quiz, you'd have been given fair warning. Repeat: This is only a fake quiz.

1. Let $f(x) = \sqrt{x} \cdot e^x$. What is $f'(x)$?

$$f'(x) = \frac{e^x}{2\sqrt{x}} + \sqrt{x}e^x$$

2. Let $f(x) = \cos x \cdot \sin x$. What is $f'(x)$?

$$f'(x) = \cos^2 x - \sin^2 x$$

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

$$f'(x) = \frac{-1}{\sin^2 x} = -\csc^2 x$$

4. Let $f(x) = \frac{e^x}{x^3}$. What is $f'(x)$?

$$f'(x) = \frac{e^x(x-3)}{x^4}$$

5. Let $f(x) = \frac{1}{(\sin x)^3}$. What is $f'(x)$?

$$f'(x) = \frac{-3 \cos x}{\sin^4 x}$$

6. Let $f(x) = \sqrt{16 - x^4}$ What is $f'(x)$?

$$f'(x) = \frac{-2x^3}{\sqrt{16-x^4}}$$