

Name: _____

Calculus

Derivative Progression G: Product Rule

Find the derivative of each function ($\frac{dy}{dx}$)

1) $y = u \cdot v$

9) $y = (\csc x) e^{\sqrt[3]{x}}$

2) $y = x^2 e^x$

10) $y = \cot x \tan x$

3) $y = e^x \tan x$

11) $y = x^{-2} \sqrt{e^x}$

4) $y = x^3 \cos x$

12) $y = \frac{e^{\frac{x}{2}}}{x^2}$

5) $y = 3x^4 \sin 5x$

13) $y = \frac{5x^3 + 3x}{\sqrt[7]{4x^2 + 2}}$

6) $y = x \ln x$

14) $y = x^2 5^x$

7) $y = \sin(5x) \ln(x^2 + 3x)$

15) $y = x^2 \log_3 x$

8) $y = (\sec x)(3x^4)$

16) $y = 5^{\sin x} \log_5(\cos x)$