

Find the derivatives using the Product Rule:

$$f(x) = 3x^2 \sin x \quad g(x) = (\sin x)(\tan x) \quad h(x) = 5x^3 \cos x + 3x^2 \tan x$$

Find the derivatives using the Quotient Rule:

$$f(x) = \frac{4x^2 + x - 2}{5x^2 + 3} \quad g(x) = \frac{-6x^2 + 5 \cot x}{3 \tan(x) + 12/x} \quad h(x) = 17x^2 + 13x + \frac{3x^5}{\cos x}$$

Find the derivatives using the Chain Rule:

$$f(x) = \sin(5x^2 + 1) \quad g(x) = \frac{1}{2x^3 + \cos x} \quad h(x) = (3x^2 + 2 \sin x)^5$$

Find the derivatives of the following functions:

$$\begin{aligned} 1) & \sin \left((3x^2 + 1) \left(17 + \frac{2}{x^2} \right) \right) & 2) & \cos \left(\frac{5x^4 + 2\sqrt{x}}{2x^4 - 3x + 1} \right) & 3) & 12x^3 \sqrt{7x^2 - 2x} \\ 4) & \frac{\sin(2x^5 - 3x^{5/2} + 2)}{2x^2 + \tan x} & 5) & \frac{7x^2 - (2x - 1) \sin x}{12 \sec x} & 6) & \cos \left(\sqrt{7x^2 - 3x + 1} \right) \\ 7) & & & & & \left(\frac{\sin(7x^2 + x)}{\cos(3x - 1)} \right)^{13} \end{aligned}$$