

Practicing the Chain Rule

Calculate the derivative $\frac{dy}{dx}$ of the following functions:

1. $y = (x^3 + 3x^2)^{17}$

7. $y = \tan^2 x \sec(x^2)$

2. $y = \sin^{-3} x + \tan^2 x$

8. $y = \frac{\sin^2 x + \cos^2 x}{(x^3 + 2x)^7}$

3. $y = (x^2 + \frac{1}{\sqrt{x}})^4$

9. $y = \frac{\tan^2 x}{\sin^6 x}$

4. $y = \frac{3}{\sin^4 x}$

10. $y = (3 + \csc(7x + 2))^{-3}$

5. $y = \sin(3x + \csc x)$

11. $y = \sin^4(\cos^3(x^2))$

6. $y = \cos^5(2x^2 - 7)$

12. $y = e^x \sec^4 x$

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