

Find the derivative of each function below. For more fun, find the second derivatives! Then you can check your answers on this website:

<https://www.wolframalpha.com/calculators/derivative-calculator>

$$x \sin(x^2) \qquad \cos(\sin(x^3)) \qquad (x^2 + 1) \csc(-x^5)$$

$$\frac{\tan(x^3)}{1+\sin(2x)} \qquad \cos^3(4x^7) \qquad \sec^2\left(\frac{2x+1}{x+3}\right)$$

$$\cot(x^5) \tan(x^5) \qquad \frac{x^3+2x}{\sqrt{3x+7}} \qquad \csc^7(3x^2)$$

$$x \cos(x^2) \sqrt{\sin(7x)} \qquad \tan^2(x \sin(x)) \qquad t^2 \sin(4t^3) + \cos^2(t)$$

$$\theta^6 \cot(3\theta^2 + \sin(\theta)) \qquad \frac{7x^2+x}{\cos^2 3x} \qquad 15x^4 \sin(\cos(x^2))$$

$$t^3 \tan(t) - \sin(t) \cos(t^2) \qquad \sqrt{\pi} + x^7 + \frac{3}{x^4} \qquad \tan^3(3x + x^4)$$

$$\sqrt{\frac{3x+1}{2-x}} \qquad z^3 \sin(7z^5) + \sec(2z) \qquad x^2(\sin^2(x) + \cos^2(x))$$

$$\left(\frac{x^3+1}{x^2+2}\right)^{\frac{3}{2}} \qquad (5y^3 + y^2) \sin^2(3y^5) \qquad \cot^4(\sqrt{x^3 + 4})$$