

Derivatives

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$$\begin{aligned} &> \text{diff}(4 x^7, x) \\ &28 x^6 \end{aligned} \tag{1}$$

$$\begin{aligned} &> \text{diff}(3 x^8 + 2 x + 1, x) \\ &24 x^7 + 2 \end{aligned} \tag{2}$$

$$\begin{aligned} &> \text{diff}\left(\frac{1}{2}(x^4 + 7), x\right) \\ &2 x^3 \end{aligned} \tag{3}$$

$$\begin{aligned} &> \text{diff}\left(x^e + \frac{1}{x^{\text{sqrt}(10)}}, x\right) \\ &\frac{x^e e}{x} - \frac{\sqrt{10}}{x^{\sqrt{10}} x} \end{aligned} \tag{4}$$

$$\begin{aligned} &> \text{diff}\left((3 x^2 + 1)^2, x\right) \\ &12 (3 x^2 + 1) x \end{aligned} \tag{5}$$

$$\begin{aligned} &> \text{diff}\left(\sqrt[3]{\frac{8}{x}}, x\right) \\ &-\frac{1}{3} \frac{8^{1/3}}{\left(\frac{1}{x}\right)^{2/3} x^2} \end{aligned} \tag{6}$$

$$\begin{aligned} &> \text{diff}\left(\text{sqrt}(x) + \frac{1}{x}, x\right) \\ &\frac{1}{2 \sqrt{x}} - \frac{1}{x^2} \end{aligned} \tag{7}$$

$$\begin{aligned} &> \text{diff}\left(\frac{x^{\frac{3}{2}} + 2}{x}, x\right) \\ &\frac{3}{2 \sqrt{x}} - \frac{x^{3/2} + 2}{x^2} \end{aligned} \tag{8}$$

$$\begin{aligned} &> \text{diff}\left(16 x^4 - 3 x^3 + \frac{x^2}{2} - 1, x\right) \\ &64 x^3 - 9 x^2 + x \end{aligned} \tag{9}$$

$$\begin{aligned} &> \text{diff}\left((x^3 - 5)(2 x + 3), x\right) \\ &6 x(2 x + 3)^2 \text{D}(x)(2 x + 3) \end{aligned} \tag{10}$$

$$\begin{aligned} &> \text{diff}\left((3 x^2 + 6)(7 + x^5), x\right) \\ &30 x(x^5 + 7) \text{D}(x)(x^5 + 7) x^4 \end{aligned} \tag{11}$$

$$\begin{aligned} &> \frac{d}{dx} (2 - x - 3x^3)(7x^3 + 27) \\ &\quad -189x(7x^3 + 27)^2 D(x)(7x^3 + 27)x^2 - 21D(x)(7x^3 + 27)x^2 \end{aligned} \quad (12)$$

$$\begin{aligned} &> \frac{d}{dx} \frac{x^2}{3x - 4} \\ &\quad \frac{2x}{3x - 4} - \frac{3x^2}{(3x - 4)^2} \end{aligned} \quad (13)$$

$$\begin{aligned} &> \text{diff}(x^{-5} + x^5, x) \\ &\quad -\frac{5}{x^6} + 5x^4 \end{aligned} \quad (14)$$

$$\begin{aligned} &> \text{diff}(2\pi \cdot r, r) \\ &\quad 2\pi \end{aligned} \quad (15)$$

$$\begin{aligned} &> \text{diff}\left(\frac{1}{x^2}, x\right) \\ &\quad -\frac{2}{x^3} \end{aligned} \quad (16)$$

$$\begin{aligned} &> \text{diff}(\sin(2x), x) \\ &\quad 2\cos(2x) \end{aligned} \quad (17)$$

$$\begin{aligned} &> \text{diff}(\text{sqrt}(\cos(5x)), x) \\ &\quad -\frac{5}{2} \frac{\sin(5x)}{\sqrt{\cos(5x)}} \end{aligned} \quad (18)$$

$$\begin{aligned} &> \text{diff}(4(\cos(x))^5, x) \\ &\quad -20\cos(x)^4 \sin(x) \end{aligned} \quad (19)$$

$$\begin{aligned} &> \text{diff}(\tan(\text{sqrt}(x)), x) \\ &\quad \frac{1}{2} \frac{1 + \tan(\sqrt{x})^2}{\sqrt{x}} \end{aligned} \quad (20)$$

$$\begin{aligned} &> \text{diff}(4\cos(x) + 2\sin(x), x) \\ &\quad -4\sin(x) + 2\cos(x) \end{aligned} \quad (21)$$

$$\begin{aligned} &> \text{diff}(-4x^2\cos(x), x) \\ &\quad -8x\cos(x) + 4x^2\sin(x) \end{aligned} \quad (22)$$

$$\begin{aligned} &> \text{diff}\left(\frac{\sec(x)}{1 + \tan(x)}, x\right) \\ &\quad \frac{\sec(x)\tan(x)}{1 + \tan(x)} - \frac{\sec(x)(1 + \tan(x)^2)}{(1 + \tan(x))^2} \end{aligned} \quad (23)$$

$$\begin{aligned} &> \text{diff}(\sin(x)^2 + \cos(x)^2, x) \\ &\quad 0 \end{aligned} \quad (24)$$

$$\begin{aligned} &> \text{diff}(\sec(x)^2 - \tan(x)^2, x) \\ &\quad 2\sec(x)^2 \tan(x) - 2\tan(x)(1 + \tan(x)^2) \end{aligned} \quad (25)$$

$$\begin{aligned} &> \text{diff}(\csc(x)\cot(x), x) \end{aligned} \quad (26)$$

$$-\csc(x) \cot(x)^2 + \csc(x) (-1 - \cot(x)^2) \quad (26)$$

$$\begin{aligned} &> \text{diff}\left(\frac{\cot(x)}{1 + \csc(x)}, x\right) \\ &\quad \frac{-1 - \cot(x)^2}{1 + \csc(x)} + \frac{\cot(x)^2 \csc(x)}{(1 + \csc(x))^2} \end{aligned} \quad (27)$$

$$\begin{aligned} &> \text{diff}(10 \tan(x) - 2 \cot(x), x) \\ &\quad 12 + 10 \tan(x)^2 + 2 \cot(x)^2 \end{aligned} \quad (28)$$

$$\begin{aligned} &> \text{diff}(x \cdot \sec(x), x) \\ &\quad \sec(x) + x \sec(x) \tan(x) \end{aligned} \quad (29)$$

$$\begin{aligned} &> \text{diff}(2 \sin(x)^2, x) \\ &\quad 4 \sin(x) \cos(x) \end{aligned} \quad (30)$$

$$\begin{aligned} &> \text{diff}\left(\frac{5}{x^2} + \sin(x), x\right) \\ &\quad -\frac{10}{x^3} + \cos(x) \end{aligned} \quad (31)$$

$$\begin{aligned} &> \text{diff}((x^2 + 1) \sec(x), x) \\ &\quad 2x \sec(x) + (x^2 + 1) \sec(x) \tan(x) \end{aligned} \quad (32)$$

$$\begin{aligned} &> \text{diff}(\sin(x), x) \\ &\quad \cos(x) \end{aligned} \quad (33)$$

$$\begin{aligned} &> \text{diff}(\cos(x) - x \cdot \csc(x), x) \\ &\quad -\sin(x) - \csc(x) + x \csc(x) \cot(x) \end{aligned} \quad (34)$$

$$\begin{aligned} &> \text{diff}\left(\frac{\sin(x) \sec(x)}{1 + x \cdot \tan(x)}, x\right) \\ &\quad \frac{\cos(x) \sec(x)}{1 + x \tan(x)} + \frac{\sin(x) \sec(x) \tan(x)}{1 + x \tan(x)} - \frac{\sin(x) \sec(x) (\tan(x) + x (1 + \tan(x)^2))}{(1 + x \tan(x))^2} \end{aligned} \quad (35)$$

$$\begin{aligned} &> \text{diff}(\sec(x) - \sqrt{2} \tan(x), x) \\ &\quad \sec(x) \tan(x) - \sqrt{2} (1 + \tan(x)^2) \end{aligned} \quad (36)$$

$$\begin{aligned} &> \text{diff}\left(\frac{\sin(x)}{x^2 + \sin(x)}, x\right) \\ &\quad \frac{\cos(x)}{x^2 + \sin(x)} - \frac{\sin(x) (2x + \cos(x))}{(x^2 + \sin(x))^2} \end{aligned} \quad (37)$$

$$\begin{aligned} &> \text{diff}(x \cdot \sin(x) - \cos(x), x) \\ &\quad 2 \sin(x) + x \cos(x) \end{aligned} \quad (38)$$

$$\begin{aligned} &> \text{diff}(\sin(x) \cos(x), x) \\ &\quad \cos(x)^2 - \sin(x)^2 \end{aligned} \quad (39)$$

$$\begin{aligned} &> \text{diff}(\tan(x), x) \\ &\quad 1 + \tan(x)^2 \end{aligned} \quad (40)$$