

Derivatives of Natural Exponential Functions

Given the natural exponential function $f(x) = e^x$

$$\frac{d}{dx}[e^x] = e^x \qquad \frac{d}{dx}[e^u] = e^u \cdot u'$$

Differentiate the following functions

$$f(x) = e^{3x}$$

$$f(x) = e^{(4x+1)}$$

Given the natural exponential function $f(x) = e^x$

$$\frac{d}{dx}[e^x] = e^x \qquad \frac{d}{dx}[e^u] = e^u \cdot u'$$

Differentiate the following functions

$$f(x) = e^{4/x}$$

$$f(x) = e^{\sqrt{x}}$$

Given the natural exponential function $f(x) = e^x$

$$\frac{d}{dx}[e^x] = e^x \qquad \frac{d}{dx}[e^u] = e^u \cdot u'$$

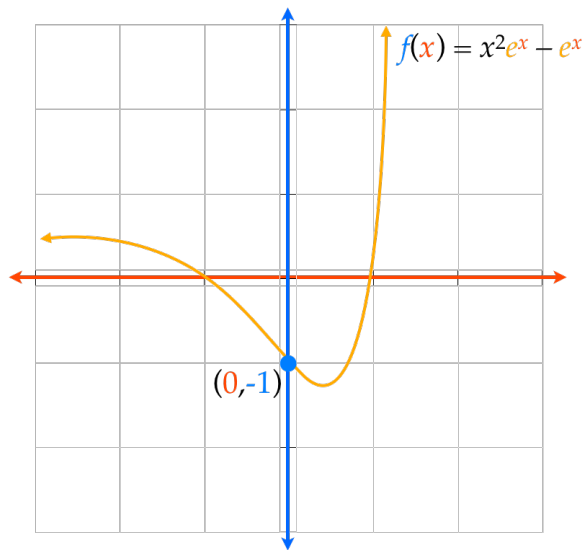
Differentiate the following functions

$$f(x) = x^2 \cdot e^x$$

$$f(x) = x \cdot e^x + e^x$$

Find the equation of the **tangent line** to the graph of f at the given point.

$$f(x) = x^2 e^x - e^x \quad \text{at } (0, -1)$$



Given the natural exponential function $f(x) = e^x$

$$\frac{d}{dx}[e^x] = e^x \qquad \frac{d}{dx}[e^u] = e^u \cdot u'$$