

Function derivative example

Calculate the derivative of the third degree of following function:

$$f(x) = (x - 5) \cdot e^x$$

$$f(x) = x \cdot e^x - 5 \cdot e^x$$

As you see function $f(x)$ is a multiply of two functions

$$f(x) = m(x) \cdot n(x)$$

$$m(x) = x - 5$$

$$n(x) = e^x$$

We have to calculate derivative of function which is multiply of two component functions

$$f'(x) = m'(x) \cdot n(x) + m(x) \cdot n'(x)$$

$$f'(x) = e^x + (x - 5) \cdot e^x$$