

Quiz 10

Find the derivative of $g(x) = x^2e^{-x}$. Find the critical points of $g(x)$.

Solution: First, use the product rule to find $g'(x) = 2xe^{-x} - x^2e^{-x}$. To find the critical points, solve the equation $2xe^{-x} - x^2e^{-x} = 0$. You can do this by factoring to get $xe^{-x}(2 - x) = 0$, so there are two critical points, $x = 0$ and $x = 2$.