

Derivatives and Continuity, Product Rule

1. For the following function:

Find:

- (a) where the function is not continuous.
 - (b) where the derivative does not exist.
2. Find $f'(x)$ for $f(x) = (x^{-2})(e^x)$.
 3. Find $f'(x)$ for $f(x) = (x^3 + 2)(\sqrt{x} + 6x)$.
 4. Where is the slope of the tangent line to $f(x) = (x + 2)e^x$ horizontal?