12. $E'(x) = \lim\limits_{\Delta x \to 0} \dfrac{E(x + \Delta x) - E(x)}{\Delta x} = \lim\limits_{\Delta x \to 0} \dfrac{E(x)E(\Delta x) - E(x)}{\Delta x} = \lim\limits_{\Delta x \to 0} E(x)\left(\dfrac{E(\Delta x) - 1}{\Delta x}\right) = E(x)\lim\limits_{\Delta x \to 0} \dfrac{E(\Delta x) - 1}{\Delta x}$

But, $E'(0) = \lim\limits_{\Delta x \to 0} \dfrac{E(\Delta x) - E(0)}{\Delta x} = \lim\limits_{\Delta x \to 0} \dfrac{E(\Delta x) - 1}{\Delta x} = 1.$ So, $E'(x) = E(x)E'(0) = E(x)$ exists for all x.

For example: $E(x) = e^x$.