Product Rule: Context Example 2, "The CD-store"

As we introduced in class: A CD store has determined from a customer survey that when the price of each CD is $x$ dollars, the number of CDs sold in a 1-month period can be modeled by the function \( N(x) = 6250 \cdot 0.92985^x \) CD's.

(a) Find the formula for monthly revenue (in dollars) when the price for a CD is $x$ dollars.

(b) Find and interpret the rate at which revenue is changing when the price of each CD is $10$, $12$, $13.75$, $15$. Express the meaning of at least one of these results in a sentence.

(c) Sketch the graph of your monthly revenue function \( R(x) \) for prices between $0$ and $25$. Check your results from (b) by drawing tangent lines.

(d) Based on your observations so far, what do you recommend to the store owner, who is selling his/her CDs at price $x$ if \( R'(x) \) is positive?