**Quiz 14**

Name: _____

Find the derivatives of the following functions.

1. $$H(t) = \cos(4t^2)$$

   $H'(t) = -\sin(4t^2) \cdot (8t)$. Note that the $8t$ is outside of the parentheses for sin.

2. $$R(x) = x^2 e^{-3x}$$

   First, product rule, and then a chain rule:

$$\begin{aligned} R'(x) &= (x^2)' e^{-3x} + (x^2)(e^{-3x})' \\ &= 2xe^{-3x} + (x^2)(-3e^{-3x}) \\ &= e^{-3x}(2x - 3x^2) \end{aligned}$$