Name: _____ Date: _____

AP Calculus: Applications of Derivatives Homework Ms. Loughran

1. $\frac{d}{dt}\left[16t^2\right]$

2. Find $V'(r)$, where $V = \pi r^3$

3. Find $F'(2)$ given that $f(2) = -1$, $f'(2) = 4$, $g(2) = 1$, $g'(2) = -5$ and $F(x) = 5f(x) + 2g(x)$.

4. Find $y'''$, where $y = 5x^2 - 4x + 7$

5. Find a function $y = ax^2 + bx + c$ whose graph has an $x$-intercept of 1, a $y$-intercept of -2, and a tangent line with a slope of -1 at the $y$-intercept.

6. Find $k$ if the curve $y = x^2 + k$ is tangent to the line $y = 2x$.

7. Find the $x$-coordinate of the point on the graph of $y = x^2$ where the tangent line is parallel to the secant line that cuts the curve at $x = -1$ and $x = 2$.