MT 1800 Calculus I
Derivatives Long Quiz 3
24 Points

Name: _____

Find each of the following derivatives by hand. You do not need to simplify.

1. $f(x) = 6^x$ $f'(x) =$ _____

2. $f(x) = x^6$ $f'(x) =$ _____

3. $h(t) = 8 + 100t - 12t^2$ $h'(t) =$ _____

4. $f(t) = 3\ln(27)$ $f'(t) =$ _____

5. $g(x) = \ln(x + \sin x)$ $g'(x) =$ _____

6. $f(x) = \dfrac{2}{\sqrt{x}} - \dfrac{\sqrt{x}}{2}$ $f'(x) =$ _____

7. $y = 3\cos(5t + 2)$ $\dfrac{dy}{dt} =$ _____

8. $g(t) = 4 \cdot 2^{-3t}$ $g'(t) =$ _____

9. $f(x) = x^4 \cdot \sin x$ $f'(x) =$ _____

10. $f(x) = \dfrac{\ln x}{x + x^2}$ $f'(x) =$ _____

11. $y = \left(3e^{2x} - 6x\right)^5$ $\dfrac{dy}{dx} =$ _____

12. $y = 17e^{3x^2 + x + 1}$ $\dfrac{dy}{dx} =$ _____