Math 251 Lab #7 **NAME:**_____

Everybody needs to turn in their own Lab 7. Show work on a separate page and **write only the answers here** in simplified, correct function form and in pencil. If the problem has radicals in it then the derivative should too, no fractional or negative exponents. Make sure to have your primes. In addition, no fractions left within fractions.

This lab is written to simply give you an opportunity to practice some of our derivative rules. There are 15 functions and you will get three points for every derivative you get correct. You can ask me if you have them correct before you hand this in. I will only say yes or no. (150 points)

No scratch work here, show it on your attached sheet.

Given Function: Its Derivative:

1. $f(x) = \sin((2x)^2)$

2. $g(x) = (\sin(2x))^2$

3. $h(x) = 4^{3x}$

4. $k(x) = \sqrt{\sin(x)}$

5. $l(x) = 3(x^2 + 3x + 4)^8$

6. $m(x) = \dfrac{2x}{\sqrt{x^2 + 1}}$

7. $n(x) = \left(\dfrac{2x+1}{x-2}\right)^4$

Given Function: Its Derivative:

8. $p(x) = x^2e^{2x}$

9. $q(x) = \sin^{-1}(2x)$

10. $r(x) = \ln(x^2e^{2x})$

11. $s(x) = \ln(\sin(x))$

12. $t(x) = \ln(x)\sin(x)$

13. $w(x) = \pi^4$

14. $y(x) = \dfrac{\ln(x)}{x^2}$

15. Find y' if $x^2 + 4xy + y^2 = 13$