Circle your Instructor:
Faudree, Williams, Zirbes _____ / 15

Math 251 Fall 2017 **Derivative Proficiency, October 25th**

Name: _____

This is a 30 minute quiz. There are 15 problems. Books, notes, calculators or any other aids are prohibited. Calculators and notes are not allowed. **Your answers should be simplified unless otherwise stated.** They should begin $y' =$ or $f'(x) =$ or $dy/dx =$, etc. There is no partial credit. If you have any questions, please raise your hand.

Circle your final answer.

For each function below, find the derivative.

1. $y = \frac{\ln x}{x^3}$

2. $g(x) = \sqrt{3x} - x^{\pi-1} + \frac{x}{3}$

3. $f(x) = 6^{x^2} + \cot(x)$

4. $y = \frac{-\pi}{(x^2+7x)^3}$

5. $h(x) = \frac{\cos 3x}{3+x-x^2}$

6. $y = \sqrt{4x^2 - 25}$

7. $F(t) = (t^{-1} + 8)e^{-1/t}$

8. $f(x) = \arctan(e^{4x})$

9. $y = \ln(3x + 1)\arccos(x^2)$

10. $G(x) = \ln\left(\frac{(x+2)^2}{8x}\right)$

11. $z = y^2(\sqrt{y} - 18\sqrt[3]{y})$

12. $h(x) = \frac{-4}{(\sec(4x))^{5/4}}$

13. (You do not need to simplify, in this case.) $H(x) = x^2 e^x (\arccos x)$

14. $g(x) = (\sin^3(x) + x)^4$

15. Find dH/dt for $H = (ax + b)(cx)^3$ where a, b, and c are fixed constants.