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

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. $g(x) = 2x^{4.1} - \sqrt{5x} + \pi^2$

2. $f(x) = 3^x + \cot(4x)$

3. $F(\theta) = 4\theta \tan(\theta)$

4. $h(x) = (2x + 1)(3 - x)^5$

5. $y = \frac{\sqrt{3}}{5} - \frac{1}{5x} + \frac{x}{4}$

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

7. $F(x) = \frac{e^x}{x^2 - x + 1}$ (Use the Quotient Rule.)

8. $z = \frac{t^4 - 8t + 3}{\sqrt{t}}$

9. $y = 12x^{4/3}(x + 3)$

10. $G(x) = \ln\left(\frac{xe^x}{(x^2+1)^3}\right)$

11. $h(x) = x(\ln x)(\cos x)$

12. $H(x) = \arctan(e^{3x})$

13. $f(x) = (x + \sec(2x))^{-7}$ [You don't need to simplify, but use parentheses correctly.]

14. $g(x) = xe^{1/x}$

15. Find dP/dr for $P = C\arccos(kr) + 2Ck$ where C and k are fixed constants.