

MTH 1126 - Test #1 - 9 am Class  
SPRING 2023

Pat Rossi

Name \_\_\_\_\_

Show CLEARLY how you arrive at your answers

1. Compute:  $\frac{d}{dx} \left[ e^{\tan(x^2)} \right] =$

2. Compute:  $\frac{d}{dx} \left[ \ln \left( \sqrt{\frac{e^x}{2x^3+x^2}} \right) \right] =$

3. Compute:  $\int e^{(6x^5+5x^2)} (3x^4 + x) dx =$

4. Compute:  $\int \frac{2x^2-1}{(4x^3-6x+3)^3} dx =$

5. Compute:  $\int \frac{x^2+2x+1}{(x^3+3x^2+3x)} dx =$

6. Compute:  $\frac{d}{dx} [\arcsin (\cot (x))] =$

7. Compute:  $\int \frac{1}{2x\sqrt{16x^2-9}} dx =$

8. Compute:  $\frac{d}{dx} [\tan^{-1} (e^x)] =$

9. Compute:  $\int \frac{1}{\sqrt{9-\sin^2(x)}} \cos(x) dx =$

10.  $z = \sec\left(\arctan\left(\frac{3x}{2}\right)\right)$  Re-write this equation as an equivalent algebraic equation.

**Extra: Wow! 10 points (All or nothing)**

Compute:  $\int \frac{\cot(3x)}{\sqrt{\sin^2(3x)-9}} dx =$