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September 13, 2017 $\qquad$

Show all work to receive full credit. Supply explanations when necessary.

1. (3 points) Find the slope of the line tangent to the graph of $y=x 7^{x^{2}}$ at the point where $x=1$.
2. (3 points) Integrate: $\int \frac{\log _{3} x^{2}}{5 x} d x$
3. (3 points) Determine the derivative of $y=x^{x}$.
4. (1 point) What is the exact value of $\sin ^{-1}(\sin (13 \pi / 6))$ ?
