

### Practice with Derivative Rules

Applied Calculus II, MA 120

January 24, 2019

Find the derivatives of the following functions. Simplify your answers as much as possible.

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

2.  $f(x) = \frac{x - 4}{x^2 + 1}$

3.  $g(x) = 4e^{x^3}$

4.  $f(t) = t \ln(t)$

5.  $g(x) = \ln(\sqrt{3x - 1})$

6.  $f(x) = x^2 e^{5x}$

7. Find the equation of the tangent line to the graph of the function  $f(x) = \frac{1}{(x^2 - 1)^2}$  at  $x = 2$ .