No notes, books, cellular devices or graphing calculators are to be used.

1. (3.2 #19) Differentiate

\[ y = \left( \frac{4x - 1}{3x + 1} \right)^3. \]

2. (3.3 #13) Use implicit differentiation to determine \( \frac{dy}{dx} \) for

\[ x^3 y^2 - 4x^2 = 1. \]
3. (4.1 #7) Write each expression in the form $2^{kx}$ or $3^{kx}$ for suitable constant $k$

(a) $6^x \cdot 3^{-x}$

(b) $\frac{15^x}{3^x}$

(c) $\frac{12^x}{2^{2x}}$

4. (4.1 #25) Solve $(2^{x+1} \cdot 2^{-3})^2 = 2$ for $x$. 