Math 222, Section 5
Exponential and Log review

Reminder: Calculators are not permitted on the in class exams or quizzes. I can’t actually stop you from using a calculator or other technology on this assignment, but if you can’t do it here without a calculator, you certainly won’t be able to do it when it really matters.

1: Find the inverse function of \( f(x) = \frac{2x+5}{3x-8} \). Give the domain and range of both \( f \) and \( f^{-1} \).

2: Simplify the following expression:
\[
\sqrt{9x^2 + 9y^2} \over (4x^2 + 4y^2)^3.
\]

3: Consider the function \( f(x) = 3^{-x} \). Give the equation of the function obtained by flipping the graph of \( f(x) \) across the \( x \)-axis. Also give the equation of the function obtained by flipping the graph of \( f(x) \) across the \( y \)-axis.

4: Solve for \( x \) in the following equation: \( \log_b(b^3) = 5x \). Your answer should be a number, and not have a \( b \) in it.

5: Solve for \( x \) if \( e^{2x} - 3e^x = 10 \).