

MA125-6A Quiz 3

Name: Key

Exercise 1. (5 points) Find the inverse function of

$$f(x) = \frac{4x-1}{2x+3}$$

S1: $y = \frac{4x-1}{2x+3}$

S2: $x = \frac{4y-1}{2y+3}$

S3: $x(2y+3) = 4y-1$

$$2xy + 3x = 4y - 1$$

$$2xy - 4y = -3x - 1$$

$$y(2x-4) = -3x-1$$

$$y = \frac{-3x-1}{2x-4}$$

$$f^{-1}(x) = \frac{-3x-1}{2x-4}$$

Exercise 2. (5 points) Use the properties of logarithms to expand the quantity

$$\ln(x^2y^3).$$

Your answer should have no exponents.

$$\ln(x^2y^3) = \ln(x^2) + \ln(y^3)$$

$$= \boxed{2\ln x + 3\ln y}$$