COMP 3725: Quiz #1 (LAB EXERCISE) Mark: /15

(1) Using only logarithmic identities, solve each of the following:

(a) [1 mark] $log_9 9^9 =$

(b) [1 mark] $log_2 4096 =$

(c) [2 marks] $log_4 4096 =$

(2) Using only logarithmic identities, determine the value of x for each of the following:

(a) [3 marks] $\log_2 8x - 4 = 1$

(b) [3 marks] $\log_b 4x^4 - \log_b 2x^2 = \log_b x$

(3) [5 marks] An ultra-high quality image requires a spatial resolution of 0.002 inch, which means that about 500 pixels per inch are required in a digital representation. Assuming 24 bits per pixel for a color image of size 8.5 by 11 inches, determine the total number of bits required for such an image representation.