2 (a) Given that $\log_a x = \dfrac{\log_b x}{\log_b a}$ show that $\log_a b = \dfrac{1}{\log_b a}$

(2)

(b) Hence solve the equation

$$\log_x 8 - 6\log_8 x = 1 \qquad x \in \mathbb{Z}^+$$

(5)

Question 2 continued

(Total for Question 2 is 7 marks)