8 **(a)** Show that the equation $2\log_2 x = \log_2(kx-1)+3$, where k is a constant, can be expressed in the form $x^2 - 8kx + 8 = 0$. **[4]**

(b) Given that the equation $2\log_2 x = \log_2(kx-1)+3$ has only one real root, find the value of this root. **[4]**