3 **(a)** Write $1+\lg(x^2-1)-2\lg(x-1)$, where $x > 1$, as a single logarithm to base 10. Give your answer in its simplest form. [4]

(b) Solve the equation $4\log_5(x+1) = 9\log_{(x+1)}5$, giving your answers in the form $a+b\sqrt{c}$, where a, b and c are constants. [5]