4 DO NOT USE A CALCULATOR IN THIS QUESTION.

Find the positive solution of the equation $\left(5+4\sqrt{7}\right)x^2+\left(4-2\sqrt{7}\right)x-1=0,$ giving your answer in the form $a+b\sqrt{7}$, where a and b are fractions in their simplest form. [5]

5 Find the equation of the tangent to the curve $y = \dfrac{\ln\left(3x^2 - 1\right)}{x + 2}$ at the point where $x = 1$. Give your answer in the form $y = mx + c$, where m and c are constants correct to 3 decimal places. [6]