8 DO NOT USE A CALCULATOR IN THIS QUESTION.

A curve has equation $y = \left(2-\sqrt{3}\right)x^2 + x - 1$. The x-coordinate of a point A on the curve is $\dfrac{\sqrt{3}+1}{2-\sqrt{3}}$.

(a) Show that the coordinates of A can be written in the form $\left(p+q\sqrt{3}, r+s\sqrt{3}\right)$, where p, q, r and s are integers. [5]

© UCLES 2021

(b) Find the x-coordinate of the stationary point on the curve, giving your answer in the form $a + b\sqrt{3}$, where a and b are rational numbers. [3]