Question 9 **(7 marks)**

(a) By using an appropriate trigonometric identity, simplify in terms of u, the expression $x^2 - 2x + 4$ where $x = \sqrt{3}\tan(u) + 1$. (2 marks)

(b) Hence evaluate $\int_1^2 \frac{dx}{(x^2 - 2x + 4)^{\frac{3}{2}}}$ exactly. (5 marks)