On Abel's Theorem

Choose only one of the following two exercises.

Exercise A. Express the following two elementary indefinite integrals in terms of only rational functions, square roots and logarithms

$$1. \quad \int \frac{x^3 \, dx}{x^2 - 3x + 2},$$

$$2. \quad \int \frac{dx}{\sqrt{x^2 - 3x + 4}}.$$

Hint. For the second integral use the substitution $t = (y-2)/x$, where y is the square root $y = \sqrt{x^2 - 3x + 4}$.

Exercise B (if you don't like calculus). Write a short essay (around one page–in English!) about the life of Niels Henrik Abel.