

Answer on Question #57371 – Math – Calculus

Question

Evaluate integral subscript 3 superscript 4 fraction numerator 2 x minus 3 over denominator x squared minus 3 x plus 1 end fraction d x

Solution

$$\begin{aligned} I &= \int_3^4 \frac{2x-3}{x^2-3x+1} dx = \\ &= \{x^2 - 3x + 1 = t, \\ &\quad (2x - 3)dx = dt, 3^2 - 3 \cdot 3 + 1 = 1, 4^2 - 3 \cdot 4 + 1 = 5 \} = \\ &= \int_1^5 \frac{dt}{t} = \ln t \Big|_{t=1}^{t=5} = \ln 5 - \ln 1 = \ln 5 \approx 1.60944. \end{aligned}$$