Answer on Question #80423 – Math – Calculus

Question

Evaluate $\int \frac{x-2}{x^2-6x+10}dx$

Solution

Rewrite the integral in the following form:

$$\int \frac{x-2}{x^2-6x+10}dx = \frac{1}{2}\int \frac{d(x^2-6x+10)}{x^2-6x+10} + \int \frac{dx}{x^2-6x+10}$$
$$= \frac{1}{2}\ln(x^2-6x+10)$$
$$+ \int \frac{dx}{(x-3)^2+1} = \frac{1}{2}\ln(x^2-6x+10) + \arctan(x-3) + C$$

Answer: $\int \frac{x-2}{x^2-6x+10}dx = \frac{1}{2}\ln(x^2-6x+10) + \arctan(x-3) + C.$