

# Logarytmy

## Zadanie 1

Wykaż, że dla  $x > 1$  zachodzi równość:

$$2 \log_2 (x^2 - 1) - 3 \log_2 (x - 1) = \log_2 \frac{x^2 + 2x + 1}{x - 1}$$

$$D : x > 1$$

$$L = 2 \log_2 (x^2 - 1) - 3 \log_2 (x - 1)$$

$$P = \log_2 \frac{x^2 + 2x + 1}{x - 1}$$

$$\begin{aligned} L &= \log_2 (x^2 - 1)^2 - \log_2 (x - 1)^3 = \log_2 \frac{(x^2 - 1)^2}{(x - 1)^3} = \log_2 \frac{\cancel{(x - 1)}^2 (x + 1)^2}{\cancel{(x - 1)}^2 (x - 1)} = \\ &= \log_2 \frac{x^2 + 2x + 1}{x - 1} = P \quad \blacksquare \end{aligned}$$