

$$f(x) = \frac{2x^2 - 3}{x^3}$$

$$Z = 2x^2 - 3 \quad N = x^3$$

$$Z' = 4x \quad N' = 3x^2$$

$$\begin{aligned} f'(x) &= \frac{4x \cdot x^3 - (2x^2 - 3) \cdot 3x^2}{x^6} \\ &= \frac{4x^4 - 6x^4 + 9x^2}{x^6} \\ &= \frac{-2x^4 + 9x^2}{x^6} \\ &= \frac{x^2(-2x^2 + 9)}{x^6} \\ &= \frac{-2x^2 + 9}{x^4} \end{aligned}$$