



Zadatak 5. Deriviraj funkcije:

$$1) f(x) = \frac{1 + x + x^2 + x^3 + x^4 + x^5 + x^6 + x^7}{1 + x + x^2 + x^3};$$

$$2) f(x) = \frac{1 + x + x^2 + \dots + x^{100} + x^{101}}{1 - x + x^2 - \dots + x^{49} - x^{50}}.$$

Rješenje.

$$1) f'(x) = \left(\frac{1 + x + x^2 + x^3}{1 + x + x^2 + x^3} + \frac{x^4(1 + x + x^2 + x^3)}{1 + x + x^2 + x^3} \right)' = (1 + x^4)' = 4x^3;$$

2)