

Laboratorio di matematica

Esercitazioni proposte – Derive

Operazioni con i polinomi

Utilizza *Derive* per sviluppare e semplificare le seguenti espressioni.

$$1 \quad (x^3 - x^2 + x - 1)(x^3 + x^2 + x + 1) \quad [x^6 + x^4 - x^2 - 1]$$

$$2 \quad (x^2 + 1)(x^2 - 1)(x^8 + x^4 + 1) \quad [x^{12} - 1]$$

$$3 \quad (a + 2b)(a^3 + 2a^2b + 3ab^2 + 4b^3) \quad [a^4 + 4a^3b + 7a^2b^2 + 10ab^3 + 8b^4]$$

$$4 \quad (3x - y^3)(x^3 + 3y)(x^2 + xy + y^2)$$

$$5 \quad \left(\frac{1}{2}x - \frac{2}{3}\right)\left(\frac{1}{2}x + \frac{2}{3}\right)\left(\frac{1}{4}x^2 + \frac{4}{9}\right)\left(\frac{1}{16}x^4 + \frac{16}{81}\right)$$

$$6 \quad (a + 1)(a^2 + 2)(a^3 + 3)(a^4 + 4)$$

$$7 \quad (a^4 + b)^2 - (a^4 - b)^2$$

$$8 \quad \left(\frac{3}{5}a^2 - \frac{2}{3}b\right)^4 - \left(\frac{3}{5}a^2 + \frac{2}{3}b\right)^4$$

$$9 \quad (x^2 - 2y)^4 - (x^2 + 2y)^4$$

$$10 \quad (a + b + c)(a + b - c)(a - b + c)(a - b - c)$$

$$11 \quad \left(a + b + \frac{2}{3}c\right)\left(a + b - \frac{2}{3}c\right) + \left(a - b + \frac{2}{3}c\right)\left(a - b - \frac{2}{3}c\right) - 2\left(a + b + \frac{2}{3}c\right)^2$$

$$12 \quad (2x^3 + y^2)^3 + 3(2x^3 + y^2)^2(2x^3 - y^2) + 3(2x^3 + y^2)(2x^3 - y^2)^2 + (2x^3 - y^2)^3$$