1. Ejercicios para practicar

Nombre:

Realiza las siguientes operaciones

Ejercicio 1: Realiza las siguientes sumas de polinomios:

[1] $4\,x^4 - 2\,x^2 + -x^4 - 4\,x^3 - 2\,x^2 + -3\,x^6 - x^5 + 4\,x^4$

[2] $x^4 - 3\,x + -2\,x^6 + x^3 + -4\,x^4 + x^2 - x$

[3] $-3\,x^5 - x^3 + 4\,x^2 + (-3\,x^6 + 4\,x^4 - 4\,x^2) + (-3\,x^5 + 2\,x^3 + 2\,x)$

[4] $4\,x^3 + x^2 + 6\,x^4 + 4\,x^2 + -4\,x^5 - 2\,x^4$

[5] $3\,x^6 + x^4 + 4\,x + -2\,x^5 + 3\,x^4 + 3\,x^2 + (-5\,x^3 + 4\,x)$

[6] $4\,x^5 - x^3 - x^2 + -4\,x^4 + 3\,x^2 + 4\,x^3$

[7] $2\,x^5 - x^4 - x + -4\,x^5 + x^3 - 3\,x + 5\,x^4 - 3\,x^2$

[8] $4\,x^4 - 4\,x^3 - 2\,x^2 + -4\,x^6 + 2\,x^5 + 4\,x^4 + 3\,x^4 + 2\,x^2$

[9] $x^3 + 2\,x^2 - 3\,x + -4\,x^5 - 2\,x^4 + 2\,x^3 + 4\,x^6 + 3\,x^5 + x$

[10] $4\,x^4 + x^2 + 3\,x^5 - 2\,x^3$

Ejercicio 2: Realiza las siguientes sumas de polinomios:

[1] $0 + 0 + 0$

[2] $4\,x^2y + -3\,x^2y^2 - 3\,x^2y + 3\,xy^2 + (-2\,x^2y - 7\,xy^2)$

[3] $14\,x^2y^2 - 12\,x^2y + -4\,x^2y^2 + 4\,x^2y + 8\,xy^2 + -2\,x^2y^2 + 2\,xy^2 + 4\,xy$

[4] $6\,x^2y^2 + 6\,xy + 36\,x^2y^2 + 6\,xy^2 + 3\,x^2y^2 + 39\,xy$

[5] $12\,x^2y + 44\,xy + 16\,xy^2 - 16\,xy + -16\,x^2y^2 - 52\,xy^2$

[6] $-20\,x^2y^2 + 75\,x^2y - 20\,xy + (-25\,x^2y^2 + 20\,x^2y + 20\,xy^2) + (-70\,xy^2 + 75\,xy)$

[7] $12\,x^2y + 72\,xy^2 - 12\,xy + -108\,x^2y^2 + 36\,x^2y - 36\,xy^2 + (-6\,x^2y + 108\,xy^2 + 144\,xy)$

[8] $-112\,x^2y^2 - 147\,x^2y + (-28\,xy^2) + (-28\,x^2y + 28\,xy^2)$

[9] $40\,x^2y^2 + -128\,x^2y^2 + 8\,x^2y - 128\,xy + (-144\,x^2y^2)$

[10] $162\,x^2y^2 - 27\,xy^2 + -162\,x^2y + 27\,xy^2 + 324\,xy + 45\,x^2y + 36\,xy$

Ejerciio 3 Realiza las siguientes sumas y restas de polinomios:

[1] $0 - (0) + (0)$

[2] $-2\,x^2y + x^2y + 4\,xy - (x^2y^2)$

[3] $2\,x^2y + 12\,xy^2 + 16\,xy + 12\,x^2y^2 + 6\,x^2y - (-8\,x^2y^2 - 8\,xy^2 + 4\,xy)$

[4] $-9\,x^2y - 27\,xy - (12\,x^2y + 36\,xy^2 - 27\,xy) + (-3\,x^2y^2 - 9\,x^2y - 18\,xy)$

[5] $-112\,x^2y^2 - 4\,x^2y + 16\,x^2y^2 + 96\,xy^2 - (48\,x^2y^2 - 4\,x^2y + 32\,xy)$

[6] $-25\,x^2y^2 + 10\,x^2y - 50\,xy + -25\,x^2y^2 + 25\,x^2y - 15\,xy^2 - (15\,x^2y + 50\,xy)$

[7] $-144\,x^2y^2 + 6\,x^2y + 12\,xy^2 - (12\,xy^2) + (24\,x^2y^2 + 24\,x^2y + 108\,xy)$

[8] $-147\,x^2y + 7\,xy + 7\,x^2y^2 - 196\,xy^2 - 14\,xy - (21\,x^2y^2 + 147\,x^2y + 14\,xy)$

[9] $16\,x^2y^2 - 64\,x^2y + 32\,xy^2 + -216\,xy^2 - (-256\,x^2y^2 + 192\,xy)$

[10] $162\,x^2y + 324\,xy^2 + 18\,xy - (243\,x^2y^2 + 27\,x^2y + 324\,xy^2) + (-72\,x^2y^2 + 36\,xy^2)$

Ejercicio 3: Realiza las siguientes multiplicaciones de monomios:

[1] $(0) \cdot (0)$
[2] $(bxyz) \cdot (-2\,b^3x^3y^2z^3)$
[3] $(4\,b^3x^2y^2z^2) \cdot (-12\,bxy^3z)$
[4] $(-3\,b^2x^2y^2z^3) \cdot (108\,b^3xy^3z^2)$
[5] $(-64\,b^3xy^2z) \cdot (64\,b^3x^2yz^3)$
[6] $(-250\,b^2xy^2z) \cdot (15\,b^3x^2y^3z^2)$
[7] $(6\,b^3xyz^2) \cdot (-864\,b^2xy^3z)$
[8] $(-28\,bx^3y^2z^3) \cdot (-196\,b^3x^2y^3z)$
[9] $(8\,b^3x^3yz) \cdot (-512\,bxyz)$
[10] $(-729\,b^2xy^2z^2) \cdot (-1458\,b^3xy^2z^2)$

Ejercicio 4: Realiza las siguientes multiplicaciones de polinomios:

[1] $(x) \cdot (-3\,x^2 + 5\,x)$
[2] $(-2\,x^2) \cdot (-7\,x^2 - x)$
[3] $(3\,x^2) \cdot (3\,x^2 - 3\,x)$
[4] $(2\,x^2) \cdot (-2\,x)$
[5] $(-3\,x^2) \cdot (7\,x^2 - 2\,x)$
[6] $(x^2) \cdot (x^2 - 3\,x)$
[7] $(4\,x^2) \cdot (6\,x)$
[8] $(-3\,x^2) \cdot (-2\,x^2 - 2\,x)$
[9] $(x^2) \cdot (x^2 - 4\,x)$
[10] $(-x) \cdot (6\,x^2 - 3\,x)$

Ejercicio 5: Realiza las siguientes multiplicaciones de polinomios:

[1] $(2\,x) \cdot (4\,x^2)$
[2] $(-2\,x) \cdot (4\,x^2 + x)$
[3] $(x^2 + x) \cdot (-2\,x^2 + 4\,x)$
[4] $(2\,x^2) \cdot (-3\,x^2 - 5\,x)$
[5] $(-x^2 - 3\,x) \cdot (-3\,x^2)$
[6] $(-3\,x) \cdot (2\,x^2 + 2\,x)$
[7] $(-8\,x) \cdot (-4\,x^2 + 4\,x)$
[8] $(-7\,x^2) \cdot (8\,x^2 - 2\,x)$
[9] $(-2\,x^2) \cdot (-2\,x^2 - 7\,x)$
[10] $(4\,x^2 + 4\,x) \cdot (-4\,x^2 + 3\,x)$
[11] $(-4\,x^2) \cdot (-x^2)$
[12] $(4\,x) \cdot (3\,x^2 + 6\,x)$
[13] $(-4\,x^2 + 3\,x) \cdot (5\,x^2 - x)$
[14] $(-3\,x^2 + x) \cdot (3\,x^2 + x)$
[15] $(4\,x^2 + 4\,x) \cdot (7\,x^2 - 3\,x)$

Ejercicio 6: Realiza las siguientes multiplicaciones de polinomios:

[1] $(x) \cdot (5\,x^2 + 2\,x)$
[2] $(0) \cdot (x^3 - 4\,x^2 - 5\,x)$
[3] $(-x^2 - 2\,x) \cdot (-4\,x^3 - x^2 - 2\,x)$
[4] $(-2\,x^3 + x^2 - 2\,x) \cdot (3\,x^2 - 2\,x)$
[5] $(-3\,x^3 + x) \cdot (-x^3 - 3\,x^2 + x)$
[6] $(2\,x^3 - 4\,x) \cdot (-3\,x^3 - 2\,x^2 - x)$
[7] $(-4\,x^3 - x^2) \cdot (-8\,x^3 + x)$
[8] $(0) \cdot (-4\,x^3 + 2\,x^2 + 7\,x)$
[9] $(-x^2) \cdot (4\,x^3 + 2\,x^2 - 4\,x)$
[10] $(-6\,x^3 - 4\,x^2) \cdot (3\,x^3 + 3\,x^2 - 3\,x)$
[11] $(-3\,x^3 - 2\,x) \cdot (-3\,x^3 - x^2 + 2\,x)$
[12] $(4\,x^2) \cdot (4\,x^3 + 4\,x^2 - 5\,x)$
[13] $(-4\,x^3) \cdot (-2\,x^3 - 3\,x^2 - 2\,x)$
[14] $(-3\,x^2 - 4\,x) \cdot (x^3 + 11\,x^2)$
[15] $(2\,x^3) \cdot (4\,x^3 - 3\,x^2)$
[16] $(x^2 - 4\,x) \cdot (x^2)$
[17] $(-3\,x^3 + 4\,x) \cdot (4\,x^3 + 5\,x)$
[18] $(3\,x^3 - 2\,x^2) \cdot (3\,x^3 + x^2 - 2\,x)$
[19] $(-2\,x) \cdot (7\,x^3 - x^2)$
[20] $(x^3 + 2\,x) \cdot (8\,x^3 + 4\,x^2 - 4\,x)$

Ejercicio 7: Realiza las siguientes multiplicaciones de polinomios:

[1] $(-5\,x^2y^2) \cdot (4\,x^2y^2 + x^2y - 4\,xy^2)$
[2] $(-4\,x^2y + 3\,xy) \cdot (x^2y^2 + 5\,xy^2)$
[3] $(x^2y + 3\,xy^2) \cdot (4\,x^2y^2 - xy^2 - xy)$
[4] $(-2\,xy^2 - 3\,xy) \cdot (4\,x^2y)$
[5] $(2\,xy^2 + 4\,xy) \cdot (-4\,x^2y - 2\,xy^2)$
[6] $(-4\,xy^2 + 2\,xy) \cdot (3\,x^2y^2 + 2\,x^2y - xy^2)$
[7] $(-5\,xy) \cdot (x^2y^2 + 4\,xy)$