1. Evaluación 1ºD - Funciones

Ejercicio 1: Realiza las siguientes sumas de polinomios:

[1] $2\,x^6+2\,x+-x^2-5\,x+-3\,x^4-4\,x^3-4\,x=2\,x^6-3\,x^4-4\,x^3-x^2-7\,x$

[2] $-4\,x^6-2\,x^2+3\,x+(-3\,x^6-2\,x^3)+(-2\,x^6+3\,x^4+4\,x^2)=-9\,x^6+3\,x^4-2\,x^3+2\,x^2+3\,x$

[3] $2\,x^5-5\,x^3+-2\,x^6+4\,x^5-2\,x^2+4\,x^5-3\,x^4+3\,x^2=-2\,x^6+10\,x^5-3\,x^4-5\,x^3+x^2$

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

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

[6] $4\,x^6-4\,x^5-x^4+-6\,x^5-x+-x^5-x=4\,x^6-11\,x^5-x^4-2\,x$

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

[8] $3\,x^5-4\,x^4+x^2+-4\,x^6-3\,x^4-3\,x^2+4\,x^6+2\,x^5-2\,x^4=5\,x^5-9\,x^4-2\,x^2$

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

[10] $4\,x^6+4\,x^3+2\,x^2+-4\,x^6+4\,x^4-3\,x^3+-6\,x^5+x^4=-6\,x^5+5\,x^4+x^3+2\,x^2$

Ejercicio 2: Realiza las siguientes sumas de polinomios:

[1] $0+0+0=0$

[2] $-5\,x^2y^2-2\,xy+(-4\,x^2y^2-2\,x^2y-4\,xy)+(-x^2y-4\,xy)=-9\,x^2y^2-3\,x^2y-10\,xy$

[3] $4\,xy^2-16\,xy+-12\,xy^2-4\,xy+-2\,x^2y-16\,xy=-2\,x^2y-8\,xy^2-36\,xy$

[4] $9\,x^2y^2-12\,x^2y-9\,xy^2+-27\,x^2y+3\,xy^2+(-36\,x^2y^2-18\,xy^2)=-27\,x^2y^2-39\,x^2y-24\,xy^2$

[5] $12\,x^2y^2+48\,xy+-8\,x^2y^2+4\,x^2y+(-32\,x^2y^2-64\,x^2y-16\,xy)=-28\,x^2y^2-60\,x^2y+32\,xy$

[6] $175\,x^2y-20\,xy+-10\,x^2y-20\,xy^2+20\,x^2y^2-95\,xy^2=20\,x^2y^2+165\,x^2y-115\,xy^2-20\,xy$

[7] $60\,x^2y^2+6\,xy^2+-72\,x^2y+150\,xy+-144\,x^2y^2-108\,xy^2+72\,xy=-84\,x^2y^2-72\,x^2y-102\,xy^2+222\,xy$

[8] $7\,x^2y^2+-196\,x^2y+49\,xy^2+126\,xy^2-28\,xy=7\,x^2y^2-196\,x^2y+175\,xy^2-28\,xy$

[9] $8\,x^2y+192\,xy^2+-240\,x^2y^2+64\,x^2y+-24\,x^2y^2+152\,xy=-264\,x^2y^2+72\,x^2y+192\,xy^2+152\,xy$

[10] $36\,x^2y+405\,xy+117\,x^2y+-9\,x^2y+18\,xy^2-9\,xy=144\,x^2y+18\,xy^2+396\,xy$

Ejerciio 3 Realiza las siguientes sumas y restas de polinomios:

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

[2] $x^2y^2-2\,x^2y+4\,xy^2+x^2y^2-x^2y+4\,xy-(-3\,x^2y^2+5\,xy^2)=5\,x^2y^2-3\,x^2y-xy^2+4\,xy$

[3] $12\,x^2y^2+8\,xy+4\,x^2y-10\,xy^2-(-12\,x^2y-8\,xy^2)=12\,x^2y^2+16\,x^2y-2\,xy^2+8\,xy$

[4] $12\,x^2y-12\,xy^2-(9\,x^2y^2+27\,x^2y+12\,xy)+(-3\,x^2y^2-21\,xy^2)=-12\,x^2y^2-15\,x^2y-33\,xy^2-12\,xy$

[5] $16\,x^2y+12\,xy^2+-36\,x^2y^2+16\,x^2y-(8\,x^2y^2-16\,x^2y-64\,xy^2)=-44\,x^2y^2+48\,x^2y+76\,xy^2$

[6] $-15\,x^2y^2+5\,xy+10\,x^2y^2+40\,xy-(50\,x^2y^2+50\,xy^2-100\,xy)=-55\,x^2y^2-50\,xy^2+145\,xy$

[7] $-48\,xy-(-6\,x^2y^2-6\,xy^2)+(114\,x^2y+108\,xy^2)=6\,x^2y^2+114\,x^2y+114\,xy^2-48\,xy$

[8] $-147\,x^2y-21\,xy^2+-49\,x^2y+49\,xy^2-(-98\,x^2y^2+49\,xy)=98\,x^2y^2-196\,x^2y+28\,xy^2-49\,xy$

[9] $192\,x^2y^2-136\,xy+24\,x^2y^2-192\,x^2y+24\,xy-(-24\,xy^2+64\,xy)=216\,x^2y^2-192\,x^2y+24\,xy^2-176\,xy$

[10] $324\,x^2y^2-324\,x^2y+36\,xy^2-(243\,x^2y+117\,xy^2)+(-63\,xy^2+324\,xy)=324\,x^2y^2-567\,x^2y-144\,xy^2+324\,xy$

Ejercicio 3: Realiza las siguientes multiplicaciones de monomios:

[1] $(0)\cdot(0)=0$

[2] $(-4\,b^3xy^3z)\cdot(-2\,bxy^2z^3)=8\,b^4x^2y^5z^4$

[3] $(24\,b^2xy^3z^2)\cdot(8\,bx^3y^2z^3)=192\,b^3x^4y^5z^5$

[4] $(-18\,b^3x^2yz)\cdot(-18\,bx^3y^2z)=324\,b^4x^5y^3z^2$

[5] $(8\,bx^2y^2z^3)\cdot(-256\,b^2x^2yz^2)=-2048\,b^3x^4y^3z^5$

[6] $(375\,bx^3yz^3)\cdot(50\,b^3xy^3z)=18750\,b^4x^4y^4z^4$

[7] $(-6\,bx^2y^3z^3)\cdot(6\,bx^2y^2z^3)=-36\,b^2x^4y^5z^6$

[8] $(-1029\,bxyz^2)\cdot(-1372\,b^3xy^2z)=1411788\,b^4x^2y^3z^3$

[9] $(24\,b^3x^2y^3z^3)\cdot(-256\,bxyz)=-6144\,b^4x^3y^4z^4$

[10] $(-36\,b^3x^3y^2z)\cdot(1458\,bxy^2z^3)=-52488\,b^4x^4y^4z^4$

Ejercicio 4: Realiza las siguientes multiplicaciones de polinomios:

[1] $(-2\,x)\cdot(4\,x^2+3\,x)=-8\,x^3-6\,x^2$

[2] $(3\,x^2)\cdot(5\,x)=15\,x^3$

[3] $(4\,x^2)\cdot(8\,x^2-x)=32\,x^4-4\,x^3$

[4] $(-x^2)\cdot(x^2-4\,x)=-x^4+4\,x^3$

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

[6] $(4\,x^2)\cdot(-2\,x^2+6\,x)=-8\,x^4+24\,x^3$

[7] $(-4\,x)\cdot(0)=0$

[8] $(4\,x)\cdot(-4\,x^2)=-16\,x^3$

[9] $(3\,x)\cdot(-5\,x^2+5\,x)=-15\,x^3+15\,x^2$

[10] $(3\,x^2)\cdot(-10\,x^2)=-30\,x^4$

Ejercicio 5: Realiza las siguientes multiplicaciones de polinomios:

[1] $(7\,x^2)\cdot(4\,x^2+3\,x)=28\,x^4+21\,x^3$

[2] $(-2\,x^2-x)\cdot(-7\,x^2)=14\,x^4+7\,x^3$

[3] $(2\,x)\cdot(-3\,x^2-2\,x)=-6\,x^3-4\,x^2$

[4] $(3\,x^2)\cdot(-5\,x^2+2\,x)=-15\,x^4+6\,x^3$

[5] $(0) \cdot (x^2 + x) = 0$

[6] $(-2\,x^2 - 3\,x) \cdot (3\,x^2 + 5\,x) = -6\,x^4 - 19\,x^3 - 15\,x^2$

[7] $(3\,x^2 + 3\,x) \cdot (6\,x^2 + 2\,x) = 18\,x^4 + 24\,x^3 + 6\,x^2$

[8] $(2\,x^2 - x) \cdot (x) = 2\,x^3 - x^2$

[9] $(x^2 + 2\,x) \cdot (4\,x^2) = 4\,x^4 + 8\,x^3$

[10] $(-7\,x) \cdot (-5\,x^2 + x) = 35\,x^3 - 7\,x^2$

[11] $(7\,x^2) \cdot (-2\,x) = -14\,x^3$

[12] $(x^2 + x) \cdot (-3\,x^2 - x) = -3\,x^4 - 4\,x^3 - x^2$

[13] $(-3\,x^2 - 4\,x) \cdot (x^2) = -3\,x^4 - 4\,x^3$

[14] $(2\,x^2) \cdot (2\,x^2 + 6\,x) = 4\,x^4 + 12\,x^3$

[15] $(-3\,x^2 - x) \cdot (-x^2 - 5\,x) = 3\,x^4 + 16\,x^3 + 5\,x^2$

Ejercicio 6: Realiza las siguientes multiplicaciones de polinomios:

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

[2] $(-4\,x^3 - 3\,x) \cdot (x^3 - 3\,x^2 + x) = -4\,x^6 + 12\,x^5 - 7\,x^4 + 9\,x^3 - 3\,x^2$

[3] $(x^2 - 3\,x) \cdot (-2\,x^3 + 8\,x) = -2\,x^5 + 6\,x^4 + 8\,x^3 - 24\,x^2$

[4] $(-x^2 - 3\,x) \cdot (-4\,x^3 + x^2) = 4\,x^5 + 11\,x^4 - 3\,x^3$

[5] $(-8\,x) \cdot (6\,x^3 + 2\,x^2) = -48\,x^4 - 16\,x^3$

[6] $(-2\,x^2 - 3\,x) \cdot (4\,x^3 - 4\,x^2 - x) = -8\,x^5 - 4\,x^4 + 14\,x^3 + 3\,x^2$

[7] $(4\,x^2) \cdot (-x) = -4\,x^3$

[8] $(-2\,x^3 - 4\,x^2) \cdot (-x^2 + x) = 2\,x^5 + 2\,x^4 - 4\,x^3$

[9] $(-3\,x^2 + x) \cdot (-2\,x^2 - 7\,x) = 6\,x^4 + 19\,x^3 - 7\,x^2$

[10] $(3\,x^2 - x) \cdot (-x^3 + 2\,x^2 - 3\,x) = -3\,x^5 + 7\,x^4 - 11\,x^3 + 3\,x^2$

[11] $(3\,x^2) \cdot (6\,x^3 - 3\,x^2 - 2\,x) = 18\,x^5 - 9\,x^4 - 6\,x^3$

[12] $(4\,x^3 - 4\,x) \cdot (3\,x^2) = 12\,x^5 - 12\,x^3$

[13] $(6\,x^2 - x) \cdot (2\,x^3 - 3\,x^2 - x) = 12\,x^5 - 20\,x^4 - 3\,x^3 + x^2$

[14] $(-3\,x^3 - 2\,x) \cdot (-2\,x^3 - 4\,x^2 - 4\,x) = 6\,x^6 + 12\,x^5 + 16\,x^4 + 8\,x^3 + 8\,x^2$

[15] $(-4\,x^3 + x^2) \cdot (-2\,x^3 - 2\,x^2 - 5\,x) = 8\,x^6 + 6\,x^5 + 18\,x^4 - 5\,x^3$

[16] $(-8\,x^3 + 2\,x^2) \cdot (-6\,x^2 - 3\,x) = 48\,x^5 + 12\,x^4 - 6\,x^3$

[17] $(-2\,x) \cdot (5\,x^3 - x^2 - 2\,x) = -10\,x^4 + 2\,x^3 + 4\,x^2$

[18] $(x^3 - x) \cdot (-4\,x^3 - 2\,x) = -4\,x^6 + 2\,x^4 + 2\,x^2$

[19] $(-x^3 - x^2 + 4\,x) \cdot (x^2) = -x^5 - x^4 + 4\,x^3$

[20] $(x^3 - x^2) \cdot (-4\,x^2 + 5\,x) = -4\,x^5 + 9\,x^4 - 5\,x^3$

Ejercicio 7: Realiza las siguientes multiplicaciones de polinomios:

[1] $(-2\,x^2y - 3\,xy) \cdot (3\,x^2y - 2\,xy^2) = -6\,x^4y^2 + 4\,x^3y^3 - 9\,x^3y^2 + 6\,x^2y^3$

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

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

[4] $(x^2y^2 - 3\,xy^2) \cdot (3\,x^2y - 4\,xy^2 - 4\,xy) = 3\,x^4y^3 - 4\,x^3y^4 - 13\,x^3y^3 + 12\,x^2y^4 + 12\,x^2y^3$

[5] $(4\,x^2y-xy)\cdot(-4\,x^2y^2+3\,x^2y-3\,xy) = -16\,x^4y^3+12\,x^4y^2+4\,x^3y^3-15\,x^3y^2+3\,x^2y^2$

[6] $(3\,x^2y^2+4\,x^2y)\cdot(-5\,x^2y^2+4\,x^2y) = -15\,x^4y^4-8\,x^4y^3+16\,x^4y^2$

[7] $(-2\,x^2y^2+2\,x^2y)\cdot(-2\,xy^2+3\,xy) = 4\,x^3y^4-10\,x^3y^3+6\,x^3y^2$