1. Evaluación 1ºD - Funciones

Ejercicio 1: Realiza las siguientes sumas de polinomios:

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

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

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

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

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

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

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

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

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

[10] $4\,x^6+-x^4-3\,x^3-4\,x^2+4\,x^6-x^4-3\,x^2=8\,x^6-2\,x^4-3\,x^3-7\,x^2$

Ejercicio 2: Realiza las siguientes sumas de polinomios:

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

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

[3] $8\,x^2y^2-6\,x^2y+-20\,xy^2-8\,xy+(-12\,x^2y^2+8\,x^2y-16\,xy^2)=-4\,x^2y^2+2\,x^2y-36\,xy^2-8\,xy$

[4] $36\,x^2y-9\,xy+-15\,x^2y^2-9\,xy+3\,x^2y^2-12\,xy^2+9\,xy=-12\,x^2y^2+36\,x^2y-12\,xy^2-9\,xy$

[5] $32\,x^2y^2+80\,x^2y+32\,x^2y^2-60\,x^2y+-40\,x^2y+8\,xy=64\,x^2y^2-20\,x^2y+8\,xy$

[6] $100\,x^2y^2-10\,x^2y+50\,xy^2+-10\,x^2y^2+-50\,x^2y^2+100\,xy^2+100\,xy=40\,x^2y^2-10\,x^2y+150\,xy^2+100\,xy$

[7] $108\,xy^2+72\,xy+72\,x^2y^2-108\,xy^2-18\,xy+36\,x^2y^2-36\,x^2y+24\,xy=108\,x^2y^2-36\,x^2y+78\,xy$

[8] $21\,x^2y^2+7\,xy^2+-21\,x^2y+14\,xy+49\,x^2y^2+7\,xy^2=70\,x^2y^2-21\,x^2y+14\,xy^2+14\,xy$

[9] $192\,x^2y^2+32\,xy^2+-16\,x^2y^2+160\,x^2y+128\,x^2y^2+192\,x^2y+32\,xy=304\,x^2y^2+352\,x^2y+32\,xy^2+32\,xy$

[10] $27\,x^2y^2+288\,xy+-198\,x^2y^2+9\,xy+-54\,x^2y^2-27\,xy^2=-225\,x^2y^2-27\,xy^2+297\,xy$

Ejerciio 3 Realiza las siguientes sumas y restas de polinomios:

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

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

[3] $-24\,x^2y+2\,xy+-6\,x^2y^2-16\,x^2y+4\,xy^2-(-2\,x^2y^2-18\,xy)=-4\,x^2y^2-40\,x^2y+4\,xy^2+20\,xy$

[4] $-27\,x^2y^2+21\,x^2y-(30\,xy^2-9\,xy)+(9\,x^2y^2-9\,x^2y-6\,xy)=-18\,x^2y^2+12\,x^2y-30\,xy^2+3\,xy$

[5] $60\,x^2y-32\,xy+16\,x^2y^2-40\,xy^2-(4\,x^2y^2+8\,x^2y-8\,xy)=12\,x^2y^2+52\,x^2y-40\,xy^2-24\,xy$

[6] $95\,x^2y^2+20\,xy+-75\,x^2y^2-100\,x^2y-5\,xy^2-(-10\,x^2y-25\,xy^2+15\,xy)=20\,x^2y^2-90\,x^2y+20\,xy^2+5\,xy$

[7] $-6\,xy^2+96\,xy-(72\,xy^2-24\,xy)+(36\,x^2y^2-144\,xy^2-108\,xy)=36\,x^2y^2-222\,xy^2+12\,xy$

[8] $-91\,xy^2+28\,x^2y^2-28\,xy-(-98\,x^2y^2+84\,xy^2)=126\,x^2y^2-175\,xy^2-28\,xy$

[9] $-24\,x^2y^2-8\,x^2y-256\,xy^2+-128\,x^2y+256\,xy^2-16\,xy-(-256\,x^2y^2+256\,x^2y-8\,xy^2)=232\,x^2y^2-392\,x^2y+8\,xy^2-16\,xy$

[10] $-81\,x^2y-324\,xy-(297\,x^2y+162\,xy)+(162\,x^2y^2-306\,xy)=162\,x^2y^2-378\,x^2y-792\,xy$

Ejercicio 3: Realiza las siguientes multiplicaciones de monomios:

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

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

[3] $(-16\,b^2x^2y^3z^3)\cdot(16\,b^3x^3yz)=-256\,b^5x^5y^4z^4$

[4] $(-81\,b^2x^2y^3z)\cdot(-9\,bxyz)=729\,b^3x^3y^4z^2$

[5] $(32\,b^3x^2y^3z)\cdot(256\,b^2xy^3z^3)=8192\,b^5x^3y^6z^4$

[6] $(-100\,b^2xy^3z)\cdot(-5\,b^2xyz^3)=500\,b^4x^2y^4z^4$

[7] $(-18\,b^2x^2y^3z^3)\cdot(-648\,b^2xy^2z^2)=11664\,b^4x^3y^5z^5$

[8] $(98\,b^3xy^2z^3)\cdot(49\,b^2xyz)=4802\,b^5x^2y^3z^4$

[9] $(-1536\,b^3xy^3z^3)\cdot(128\,bx^3y^2z^2)=-196608\,b^4x^4y^5z^5$

[10] $(243\,b^2x^3y^2z^3)\cdot(-2916\,b^3x^2y^3z^2)=-708588\,b^5x^5y^5z^5$

Ejercicio 4: Realiza las siguientes multiplicaciones de polinomios:

[1] $(3\,x^2)\cdot(6\,x^2+3\,x)=18\,x^4+9\,x^3$

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

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

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

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

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

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

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

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

[10] $(2\,x)\cdot(3\,x^2+8\,x)=6\,x^3+16\,x^2$

Ejercicio 5: Realiza las siguientes multiplicaciones de polinomios:

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

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

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

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

[5] $(-x^2+4\,x)\cdot(2\,x^2-2\,x)=-2\,x^4+10\,x^3-8\,x^2$

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

[7] $(6\,x)\cdot(-5\,x) = -30\,x^2$

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

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

[10] $(4\,x^2-4\,x)\cdot(-5\,x^2+3\,x) = -20\,x^4+32\,x^3-12\,x^2$

[11] $(3\,x^2+4\,x)\cdot(-x^2-4\,x) = -3\,x^4-16\,x^3-16\,x^2$

[12] $(-6\,x)\cdot(-4\,x^2-6\,x) = 24\,x^3+36\,x^2$

[13] $(7\,x^2)\cdot(4\,x^2-5\,x) = 28\,x^4-35\,x^3$

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

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

Ejercicio 6: Realiza las siguientes multiplicaciones de polinomios:

[1] $(-2\,x^2+4\,x)\cdot(x^2-7\,x) = -2\,x^4+18\,x^3-28\,x^2$

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

[3] $(-3\,x^3-4\,x^2)\cdot(-6\,x^3-5\,x^2) = 18\,x^6+39\,x^5+20\,x^4$

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

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

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

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

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

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

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

[11] $(4\,x^3+x)\cdot(4\,x^3+4\,x^2+3\,x) = 16\,x^6+16\,x^5+16\,x^4+4\,x^3+3\,x^2$

[12] $(-5\,x^2)\cdot(x^3-4\,x^2-3\,x) = -5\,x^5+20\,x^4+15\,x^3$

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

[14] $(-3\,x^2+x)\cdot(-6\,x) = 18\,x^3-6\,x^2$

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

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

[17] $(-2\,x^2-2\,x)\cdot(-x^3-2\,x^2) = 2\,x^5+6\,x^4+4\,x^3$

[18] $(-4\,x^3+x)\cdot(-3\,x^2-x) = 12\,x^5+4\,x^4-3\,x^3-x^2$

[19] $(-3\,x)\cdot(3\,x^3-8\,x) = -9\,x^4+24\,x^2$

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

Ejercicio 7: Realiza las siguientes multiplicaciones de polinomios:

[1] $(0)\cdot(x^2y-2\,xy) = 0$

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

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

[4] $(4\,xy^2+4\,xy)\cdot(2\,x^2y^2+4\,x^2y) = 8\,x^3y^4+24\,x^3y^3+16\,x^3y^2$

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

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

[7] $(-4\,x^2y^2+2\,xy^2)\cdot(x^2y^2+4\,xy^2-3\,xy) = -4\,x^4y^4-14\,x^3y^4+12\,x^3y^3+8\,x^2y^4-6\,x^2y^3$