1. Evaluación 1ºD - Funciones

Ejercicio 1: Realiza las siguientes sumas de polinomios:

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

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

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

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

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

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

[7] $3\,x^6-4\,x^4+x^2+-4\,x^2-4\,x+8\,x^5-3\,x^3=3\,x^6+8\,x^5-4\,x^4-3\,x^3-3\,x^2-4\,x$

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

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

[10] $2\,x^6+x^2+x+-3\,x^5+3\,x^2+-7\,x^5-3\,x^2=2\,x^6-10\,x^5+x^2+x$

Ejercicio 2: Realiza las siguientes sumas de polinomios:

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

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

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

[4] $9\,x^2y+45\,xy+-27\,x^2y^2+18\,xy+12\,x^2y-12\,xy^2=-27\,x^2y^2+21\,x^2y-12\,xy^2+63\,xy$

[5] $12\,x^2y-64\,xy+12\,x^2y+64\,xy^2+16\,xy+16\,x^2y^2-64\,xy^2=16\,x^2y^2+24\,x^2y-48\,xy$

[6] $15\,x^2y-5\,xy^2+-85\,xy^2+5\,xy+(-15\,x^2y^2+55\,x^2y)=-15\,x^2y^2+70\,x^2y-90\,xy^2+5\,xy$

[7] $72\,x^2y-72\,xy^2-108\,xy+24\,x^2y+144\,xy^2-12\,xy+-108\,x^2y+90\,xy=-12\,x^2y+72\,xy^2-30\,xy$

[8] $105\,xy^2+-7\,xy^2-7\,xy+(-49\,x^2y-28\,xy)=-49\,x^2y+98\,xy^2-35\,xy$

[9] $64\,x^2y^2+24\,x^2y+8\,xy+-24\,x^2y^2+192\,x^2y+-208\,x^2y^2-16\,x^2y=-168\,x^2y^2+200\,x^2y+8\,xy$

[10] $18\,x^2y^2+270\,xy+-27\,x^2y^2-81\,x^2y+162\,xy^2+-9\,x^2y^2-324\,xy^2+324\,xy=-18\,x^2y^2-81\,x^2y-162\,xy^2+594\,xy$

Ejerciio 3 Realiza las siguientes sumas y restas de polinomios:

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

[2] $-2\,x^2y^2+5\,xy+3\,x^2y^2-6\,x^2y-(3\,xy^2-3\,xy)=x^2y^2-6\,x^2y-3\,xy^2+8\,xy$

[3] $16\,x^2y+2\,xy+-14\,x^2y^2-(28\,x^2y^2-16\,xy)=-42\,x^2y^2+16\,x^2y+18\,xy$

[4] $-27\,x^2y^2-36\,xy-(27\,x^2y^2+36\,xy)+(-12\,xy^2-18\,xy)=-54\,x^2y^2-12\,xy^2-90\,xy$

[5] $-64\,x^2y^2+16\,x^2y+16\,xy^2-32\,xy-(16\,x^2y^2-36\,xy^2)=-80\,x^2y^2+16\,x^2y+52\,xy^2-32\,xy$

[6] $15\,x^2y^2-15\,xy^2-50\,xy+-75\,xy^2-(-25\,x^2y+50\,xy^2+20\,xy)=15\,x^2y^2+25\,x^2y-140\,xy^2-70\,xy$

[7] $-30\,x^2y-(18\,x^2y^2-36\,xy)+(36\,xy^2-120\,xy)=-18\,x^2y^2-30\,x^2y+36\,xy^2-84\,xy$

[8] $-98\,x^2y^2-7\,x^2y+196\,xy+-14\,x^2y^2+168\,xy^2-(-182\,x^2y-14\,xy)=-112\,x^2y^2+175\,x^2y+168\,xy^2+210\,xy$

[9] $128\,x^2y-32\,xy+8\,xy^2+64\,xy-(-208\,x^2y^2-8\,x^2y)=208\,x^2y^2+136\,x^2y+8\,xy^2+32\,xy$

[10] $-27\,x^2y^2-18\,x^2y+36\,xy-(18\,x^2y^2+252\,x^2y)+(-486\,x^2y-18\,xy^2)=-45\,x^2y^2-756\,x^2y-18\,xy^2+36\,xy$

Ejercicio 3: Realiza las siguientes multiplicaciones de monomios:

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

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

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

[4] $(-9\,b^3xy^3z)\cdot(27\,b^3x^2y^3z^3)=-243\,b^6x^3y^6z^4$

[5] $(-64\,bxy^3z)\cdot(-256\,bx^2y^2z)=16384\,b^2x^3y^5z^2$

[6] $(-100\,bx^2y^3z)\cdot(-20\,b^2x^2yz^3)=2000\,b^3x^4y^4z^4$

[7] $(144\,bx^3y^2z^3)\cdot(-72\,b^3xy^2z^3)=-10368\,b^4x^4y^4z^6$

[8] $(1372\,b^3xy^2z^2)\cdot(-7\,bx^2y^2z)=-9604\,b^4x^3y^4z^3$

[9] $(-8\,bxy^2z^2)\cdot(1024\,bx^2yz^2)=-8192\,b^2x^3y^3z^4$

[10] $(243\,b^2x^2yz^3)\cdot(2916\,bx^2y^2z)=708588\,b^3x^4y^3z^4$

Ejercicio 4: Realiza las siguientes multiplicaciones de polinomios:

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

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

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

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

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

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

[7] $(3\,x)\cdot(-2\,x^2-9\,x)=-6\,x^3-27\,x^2$

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

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

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

Ejercicio 5: Realiza las siguientes multiplicaciones de polinomios:

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

[2] $(2\,x^2-2\,x)\cdot(4\,x^2-7\,x)=8\,x^4-22\,x^3+14\,x^2$

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

[4] $(2\,x^2-3\,x)\cdot(0)=0$

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

[6] $(4\,x^2+x)\cdot(2\,x^2+7\,x)=8\,x^4+30\,x^3+7\,x^2$

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

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

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

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

[11] $(4\,x^2+4\,x)\cdot(x^2-4\,x)=4\,x^4-12\,x^3-16\,x^2$

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

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

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

[15] $(2\,x^2)\cdot(2\,x^2-7\,x)=4\,x^4-14\,x^3$

Ejercicio 6: Realiza las siguientes multiplicaciones de polinomios:

[1] $(-4\,x^3)\cdot(-2\,x^2+x)=8\,x^5-4\,x^4$

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

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

[4] $(-4\,x^3+7\,x^2)\cdot(-x^3+3\,x)=4\,x^6-7\,x^5-12\,x^4+21\,x^3$

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

[6] $(2\,x^3+4\,x^2)\cdot(7\,x^3+x^2)=14\,x^6+30\,x^5+4\,x^4$

[7] $(-x^3+5\,x)\cdot(3\,x^3+x^2+4\,x)=-3\,x^6-x^5+11\,x^4+5\,x^3+20\,x^2$

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

[9] $(3\,x^3+2\,x)\cdot(-3\,x^3-6\,x)=-9\,x^6-24\,x^4-12\,x^2$

[10] $(-2\,x^3-2\,x^2+2\,x)\cdot(3\,x^3-4\,x^2+2\,x)=-6\,x^6+2\,x^5+10\,x^4-12\,x^3+4\,x^2$

[11] $(-2\,x^3)\cdot(3\,x^3+4\,x^2+3\,x)=-6\,x^6-8\,x^5-6\,x^4$

[12] $(0)\cdot(-x^3-x^2-3\,x)=0$

[13] $(x^3+4\,x^2-3\,x)\cdot(-2\,x^3-5\,x)=-2\,x^6-8\,x^5+x^4-20\,x^3+15\,x^2$

[14] $(-3\,x^2+x)\cdot(-3\,x^3+3\,x^2)=9\,x^5-12\,x^4+3\,x^3$

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

[16] $(-6\,x^2-3\,x)\cdot(x^3+4\,x^2+2\,x)=-6\,x^5-27\,x^4-24\,x^3-6\,x^2$

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

[18] $(-4\,x^3-3\,x^2)\cdot(2\,x^3-2\,x^2-3\,x)=-8\,x^6+2\,x^5+18\,x^4+9\,x^3$

[19] $(3\,x^2+3\,x)\cdot(4\,x^3+3\,x^2+3\,x)=12\,x^5+21\,x^4+18\,x^3+9\,x^2$

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

Ejercicio 7: Realiza las siguientes multiplicaciones de polinomios:

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

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

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

[4] $(5\,xy)\cdot(-2\,x^2y-4\,xy)=-10\,x^3y^2-20\,x^2y^2$

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

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

[7] $(2\,x^2y^2-4\,xy)\cdot(-5\,xy^2+xy)=-10\,x^3y^4+2\,x^3y^3+20\,x^2y^3-4\,x^2y^2$