1. Evaluación 1ºD - Funciones

Ejercicio 1: Realiza las siguientes sumas de polinomios:

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

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

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

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

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

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

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

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

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

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

Ejercicio 2: Realiza las siguientes sumas de polinomios:

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

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

[3] $12\,xy+-4\,x^2y^2+16\,xy^2-8\,xy+-4\,x^2y+2\,xy^2=-4\,x^2y^2-4\,x^2y+18\,xy^2+4\,xy$

[4] $27\,x^2y+27\,xy^2+6\,x^2y^2+27\,xy^2+18\,xy+-3\,x^2y^2+45\,xy=3\,x^2y^2+27\,x^2y+54\,xy^2+63\,xy$

[5] $52\,x^2y+-68\,x^2y+32\,x^2y+20\,xy=16\,x^2y+20\,xy$

[6] $145\,xy+-10\,xy^2-55\,xy+-20\,x^2y^2-10\,xy^2+5\,xy=-20\,x^2y^2-20\,xy^2+95\,xy$

[7] $48\,x^2y^2-108\,xy+-36\,xy^2-24\,xy+36\,x^2y+96\,xy^2=48\,x^2y^2+36\,x^2y+60\,xy^2-132\,xy$

[8] $49\,x^2y^2+98\,xy^2-14\,xy+-140\,x^2y^2+21\,xy^2+-196\,x^2y+42\,xy=-91\,x^2y^2-196\,x^2y+119\,xy^2+28\,xy$

[9] $192\,x^2y-96\,xy^2+-136\,x^2y^2-64\,xy^2+(-128\,x^2y^2+128\,xy^2+16\,xy)=-264\,x^2y^2+192\,x^2y-32\,xy^2+16\,xy$

[10] $27\,x^2y^2-36\,xy^2+162\,xy+252\,x^2y+-162\,x^2y^2-27\,x^2y=-135\,x^2y^2+225\,x^2y-36\,xy^2+162\,xy$

Ejerciio 3 Realiza las siguientes sumas y restas de polinomios:

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

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

[3] $-6\,x^2y^2+4\,x^2y-4\,xy^2+-2\,x^2y^2-6\,xy^2-(-4\,xy)=-8\,x^2y^2+4\,x^2y-10\,xy^2+4\,xy$

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

[5] $16\,x^2y^2-8\,x^2y-12\,xy^2+-80\,x^2y-12\,xy-(12\,x^2y^2)=4\,x^2y^2-88\,x^2y-12\,xy^2-12\,xy$

[6] $-10\,x^2y+5\,xy^2-15\,xy+-75\,x^2y^2-10\,x^2y+50\,xy-(10\,x^2y+15\,xy^2)=-75\,x^2y^2-30\,x^2y-10\,xy^2+35\,xy$

[7] $12\,x^2y^2-114\,xy-(72\,x^2y^2+72\,x^2y-72\,xy)+(36\,x^2y^2)=-24\,x^2y^2-72\,x^2y-42\,xy$

[8] $-196\,x^2y-49\,xy^2+98\,xy+-7\,x^2y^2-49\,x^2y-(-56\,x^2y^2)=49\,x^2y^2-245\,x^2y-49\,xy^2+98\,xy$

[9] $-256\,x^2y^2+8\,x^2y-256\,xy^2+24\,x^2y^2-(-160\,xy^2)=-232\,x^2y^2+8\,x^2y-96\,xy^2$

[10] $36\,x^2y^2-9\,x^2y-(-27\,x^2y+162\,xy)+(-45\,x^2y-324\,xy^2)=36\,x^2y^2-27\,x^2y-324\,xy^2-162\,xy$

Ejercicio 3: Realiza las siguientes multiplicaciones de monomios:

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

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

[3] $(24\,b^3x^2y^3z^2)\cdot(-16\,b^2x^3y^2z)=-384\,b^5x^5y^5z^3$

[4] $(18\,bxy^2z^3)\cdot(-108\,bx^3y^2z^3)=-1944\,b^2x^4y^4z^6$

[5] $(64\,b^3xy^3z^2)\cdot(8\,b^3x^2y^2z)=512\,b^6x^3y^5z^3$

[6] $(25\,b^2x^2y^3z^3)\cdot(500\,b^2xy^3z^3)=12500\,b^4x^3y^6z^6$

[7] $(72\,b^2xy^3z^3)\cdot(216\,b^2x^3y^2z)=15552\,b^4x^4y^5z^4$

[8] $(-21\,b^3x^2yz^3)\cdot(14\,b^2x^3y^2z^2)=-294\,b^5x^5y^3z^5$

[9] $(8\,bxyz^2)\cdot(-8\,b^2x^2yz^2)=-64\,b^3x^3y^2z^4$

[10] $(-2916\,b^3x^2yz)\cdot(-2916\,bx^3yz)=8503056\,b^4x^5y^2z^2$

Ejercicio 4: Realiza las siguientes multiplicaciones de polinomios:

[1] $(-3\,x^2)\cdot(4\,x^2+2\,x)=-12\,x^4-6\,x^3$

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

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

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

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

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

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

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

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

[10] $(4\,x)\cdot(-4\,x^2+x)=-16\,x^3+4\,x^2$

Ejercicio 5: Realiza las siguientes multiplicaciones de polinomios:

[1] $(4\,x^2-x)\cdot(-8\,x^2)=-32\,x^4+8\,x^3$

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

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

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

[5] $(6\,x)\cdot(-3\,x^2+4\,x)=-18\,x^3+24\,x^2$

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

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

[8] $(-3\,x^2-x)\cdot(-3\,x^2-8\,x)=9\,x^4+27\,x^3+8\,x^2$

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

[10] $(2\,x^2+4\,x)\cdot(x^2+4\,x)=2\,x^4+12\,x^3+16\,x^2$

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

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

[13] $(0)\cdot(9\,x)=0$

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

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

Ejercicio 6: Realiza las siguientes multiplicaciones de polinomios:

[1] $(-3\,x^3+2\,x^2)\cdot(-4\,x^3)=12\,x^6-8\,x^5$

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

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

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

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

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

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

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

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

[10] $(8\,x^2-3\,x)\cdot(4\,x^2)=32\,x^4-12\,x^3$

[11] $(4\,x^3+3\,x)\cdot(-3\,x^2+7\,x)=-12\,x^5+28\,x^4-9\,x^3+21\,x^2$

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

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

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

[15] $(2\,x^3-3\,x)\cdot(x^3-5\,x^2-x)=2\,x^6-10\,x^5-5\,x^4+15\,x^3+3\,x^2$

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

[17] $(-2\,x^2+3\,x)\cdot(6\,x^2)=-12\,x^4+18\,x^3$

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

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

[20] $(4\,x^2)\cdot(4\,x^3-x^2-2\,x)=16\,x^5-4\,x^4-8\,x^3$

Ejercicio 7: Realiza las siguientes multiplicaciones de polinomios:

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

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

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

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

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

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

[7] $(-6\,x^2y)\cdot(2\,x^2y^2-x^2y+3\,xy)=-12\,x^4y^3+6\,x^4y^2-18\,x^3y^2$