1. Evaluación 1ºD - Funciones

Ejercicio 1: Realiza las siguientes sumas de polinomios:

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

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

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

[4] $2\,x^{2}-5\,x+-2\,x^{6}-3\,x^{2}-4\,x+-2\,x^{2}-7\,x=-2\,x^{6}-3\,x^{2}-16\,x$

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

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

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

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

[9] $5\,x^{4}-x^{2}+-x^{3}-4\,x^{2}+4\,x^{2}+3\,x=5\,x^{4}-x^{3}-x^{2}+3\,x$

[10] $3\,x^{6}+2\,x^{2}+3\,x+-x^{5}-3\,x^{2}+-x^{3}+4\,x=3\,x^{6}-x^{5}-x^{3}-x^{2}+7\,x$

Ejercicio 2: Realiza las siguientes sumas de polinomios:

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

[2] $4\,x^{2}y-5\,xy+4\,xy^{2}-2\,xy+2\,x^{2}y^{2}+xy^{2}=2\,x^{2}y^{2}+4\,x^{2}y+5\,xy^{2}-7\,xy$

[3] $6\,xy^{2}+12\,xy+18\,xy^{2}+-8\,x^{2}y^{2}-2\,xy^{2}-4\,xy=-8\,x^{2}y^{2}+22\,xy^{2}+8\,xy$

[4] $9\,x^{2}y^{2}+12\,x^{2}y+27\,xy^{2}+-12\,x^{2}y^{2}+9\,x^{2}y-27\,xy^{2}+12\,x^{2}y-18\,xy=-3\,x^{2}y^{2}+33\,x^{2}y-18\,xy$

[5] $76\,x^{2}y+96\,x^{2}y^{2}+16\,x^{2}y-16\,xy^{2}+48\,xy=96\,x^{2}y^{2}+92\,x^{2}y-16\,xy^{2}+48\,xy$

[6] $95\,x^{2}y-15\,xy^{2}+25\,x^{2}y^{2}+75\,xy^{2}-10\,xy+10\,x^{2}y^{2}-10\,x^{2}y-50\,xy^{2}=35\,x^{2}y^{2}+85\,x^{2}y+10\,xy^{2}-10\,xy$

[7] $144\,xy^{2}+12\,x^{2}y^{2}+6\,xy+-72\,x^{2}y-12\,xy^{2}+144\,xy=12\,x^{2}y^{2}-72\,x^{2}y+132\,xy^{2}+150\,xy$

[8] $49\,x^{2}y^{2}+98\,xy^{2}-14\,xy+-49\,x^{2}y^{2}+147\,x^{2}y-49\,xy^{2}+-14\,x^{2}y+210\,xy^{2}=133\,x^{2}y+259\,xy^{2}-14\,xy$

[9] $128\,x^{2}y^{2}+32\,x^{2}y+64\,xy+-448\,x^{2}y^{2}+192\,x^{2}y+(-128\,x^{2}y)=-320\,x^{2}y^{2}+96\,x^{2}y+64\,xy$

[10] $324\,x^{2}y+9\,xy^{2}-27\,xy+-324\,x^{2}y^{2}+9\,x^{2}y+-180\,xy=-324\,x^{2}y^{2}+333\,x^{2}y+9\,xy^{2}-207\,xy$

Ejerciio 3 Realiza las siguientes sumas y restas de polinomios:

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

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

[3] $2\,x^{2}y^{2}-12\,xy+-14\,x^{2}y^{2}-(8\,x^{2}y^{2}-6\,xy)=-20\,x^{2}y^{2}-6\,xy$

[4] $9\,x^{2}y^{2}-48\,x^{2}y-(27\,x^{2}y^{2}+12\,xy^{2}-9\,xy)+(-3\,x^{2}y^{2}-12\,x^{2}y-9\,xy)=-21\,x^{2}y^{2}-60\,x^{2}y-12\,xy^{2}$

[5] $-4\,x^{2}y-48\,xy^{2}+48\,xy+-8\,xy^{2}+48\,xy-(-8\,x^{2}y^{2}+64\,xy^{2}-32\,xy)=8\,x^{2}y^{2}-4\,x^{2}y-120\,xy^{2}+128\,xy$

[6] $-15\,x^{2}y^{2}+5\,x^{2}y^{2}+20\,xy^{2}-50\,xy-(-100\,xy^{2}+35\,xy)=-10\,x^{2}y^{2}+120\,xy^{2}-85\,xy$

[7] $108\,x^2y^2+18\,xy^2-108\,xy-(162\,x^2y+36\,xy)+(-72\,xy^2+18\,xy) = 108\,x^2y^2-162\,x^2y-54\,xy^2-126\,xy$

[8] $294\,x^2y-98\,xy+147\,x^2y^2-14\,x^2y+98\,xy-(35\,x^2y-196\,xy) = 147\,x^2y^2+245\,x^2y+196\,xy$

[9] $32\,x^2y^2-8\,xy^2-24\,xy+-96\,x^2y^2-192\,xy-(-24\,x^2y^2+8\,xy^2) = -40\,x^2y^2-16\,xy^2-216\,xy$

[10] $-243\,x^2y^2-27\,xy^2-81\,xy-(45\,x^2y-81\,xy^2)+(-324\,x^2y+207\,xy) = -243\,x^2y^2-369\,x^2y+54\,xy^2+126\,xy$

Ejercicio 3: Realiza las siguientes multiplicaciones de monomios:

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

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

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

[4] $(36\,bxyz^2)\cdot(36\,b^2xy^2z) = 1296\,b^3x^2y^3z^3$

[5] $(-48\,b^2x^3y^3z)\cdot(-48\,bx^3y^2z) = 2304\,b^3x^6y^5z^2$

[6] $(15\,bx^2y^2z^2)\cdot(375\,b^2xyz^3) = 5625\,b^3x^3y^3z^5$

[7] $(-72\,b^2xyz^3)\cdot(-648\,bx^3y^3z^3) = 46656\,b^3x^4y^4z^6$

[8] $(1029\,b^3xy^3z^2)\cdot(-147\,bxy^3z^3) = -151263\,b^4x^2y^6z^5$

[9] $(-8\,b^2x^3y^3z)\cdot(24\,bx^2y^3z^2) = -192\,b^3x^5y^6z^3$

[10] $(81\,b^3xy^2z)\cdot(27\,bx^3yz^3) = 2187\,b^4x^4y^3z^4$

Ejercicio 4: Realiza las siguientes multiplicaciones de polinomios:

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

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

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

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

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

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

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

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

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

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

Ejercicio 5: Realiza las siguientes multiplicaciones de polinomios:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Ejercicio 6: Realiza las siguientes multiplicaciones de polinomios:

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

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

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

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

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

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

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

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

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

[10] $(-4\,x^2+4\,x)\cdot(2\,x^3-3\,x^2)=-8\,x^5+20\,x^4-12\,x^3$

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

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

[13] $(3\,x^3+3\,x)\cdot(x^3+3\,x)=3\,x^6+12\,x^4+9\,x^2$

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

[15] $(6\,x^3)\cdot(-3\,x^3-3\,x^2-6\,x)=-18\,x^6-18\,x^5-36\,x^4$

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

[17] $(4\,x^2)\cdot(3\,x^3+2\,x^2-x)=12\,x^5+8\,x^4-4\,x^3$

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

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

[20] $(-2\,x^2+3\,x)\cdot(-3\,x^3+10\,x^2)=6\,x^5-29\,x^4+30\,x^3$

Ejercicio 7: Realiza las siguientes multiplicaciones de polinomios:

[1] $(-2\,x^2y+xy)\cdot(2\,x^2y^2-7\,x^2y)=-4\,x^4y^3+14\,x^4y^2+2\,x^3y^3-7\,x^3y^2$

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

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

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

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

[6] $(8\,xy^2)\cdot(-4\,x^2y-3\,xy^2-3\,xy)=-32\,x^3y^3-24\,x^2y^4-24\,x^2y^3$

[7] $(2\,x^2y-2\,xy)\cdot(2\,x^2y+5\,xy)=4\,x^4y^2+6\,x^3y^2-10\,x^2y^2$