# 1. Evaluación 1ºD - Funciones

Ejercicio 1: Realiza las siguientes sumas de polinomios:

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

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

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

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

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

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

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

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

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

[10] $0+-x^6+2\,x^5-x+-3\,x^4-4\,x^3+x=-x^6+2\,x^5-3\,x^4-4\,x^3$

Ejercicio 2: Realiza las siguientes sumas de polinomios:

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

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

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

[4] $18\,x^2y-15\,xy^2+-18\,xy^2+(-3\,x^2y^2+27\,x^2y)=-3\,x^2y^2+45\,x^2y-33\,xy^2$

[5] $-48\,xy^2-16\,xy+(-20\,x^2y)+(-8\,x^2y^2-48\,x^2y+32\,xy)=-8\,x^2y^2-68\,x^2y-48\,xy^2+16\,xy$

[6] $15\,xy^2-75\,xy+-50\,x^2y^2+70\,x^2y+(-25\,x^2y+50\,xy^2+25\,xy)=-50\,x^2y^2+45\,x^2y+65\,xy^2-50\,xy$

[7] $54\,x^2y-144\,xy^2+-6\,x^2y^2-72\,xy^2+36\,xy+-6\,x^2y^2-108\,x^2y+72\,xy=-12\,x^2y^2-54\,x^2y-216\,xy^2+108\,xy$

[8] $-196\,x^2y+42\,xy^2+(-14\,x^2y^2+42\,xy)+(-7\,x^2y-14\,xy)=-14\,x^2y^2-203\,x^2y+42\,xy^2+28\,xy$

[9] $280\,x^2y^2-256\,xy^2+128\,x^2y^2-32\,x^2y-16\,xy^2+64\,x^2y-16\,xy^2+16\,xy=408\,x^2y^2+32\,x^2y-288\,xy^2+16\,xy$

[10] $162\,x^2y^2-81\,x^2y+9\,xy+-315\,xy+-243\,x^2y^2-162\,xy^2+9\,xy=-81\,x^2y^2-81\,x^2y-162\,xy^2-297\,xy$

Ejerciio 3 Realiza las siguientes sumas y restas de polinomios:

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

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

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

[4] $-27\,x^2y^2-27\,xy-(-63\,x^2y-36\,xy)+(-36\,x^2y^2-27\,x^2y+3\,xy^2)=-63\,x^2y^2+36\,x^2y+3\,xy^2+9\,xy$

[5] $64\,x^2y^2+16\,x^2y+12\,xy+-16\,x^2y-48\,xy^2+4\,xy-(8\,x^2y+16\,xy^2-4\,xy)=64\,x^2y^2-8\,x^2y-64\,xy^2+20\,xy$

[6] $15\,xy^2+95\,xy+-50\,x^2y-100\,xy^2-5\,xy-(75\,x^2y^2-85\,x^2y)=-75\,x^2y^2+35\,x^2y-85\,xy^2+90\,xy$

[7] $90\,x^2y^2-(36\,x^2y^2-18\,xy)+(-12\,x^2y-90\,xy)=54\,x^2y^2-12\,x^2y-72\,xy$

[8] $-70\,x^2y-98\,xy^2+-28\,x^2y-133\,xy^2-(21\,xy^2+42\,xy)=-98\,x^2y-252\,xy^2-42\,xy$

[9] $-24\,x^2y^2+192\,x^2y-16\,xy+24\,x^2y^2+128\,xy^2-(-192\,x^2y^2-64\,xy)=192\,x^2y^2+192\,x^2y+128\,xy^2+48\,xy$

[10] $-18\,xy^2-(324\,xy^2)+(243\,xy^2-405\,xy)=-99\,xy^2-405\,xy$

Ejercicio 3: Realiza las siguientes multiplicaciones de monomios:

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

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

[3] $(8\,b^3x^2y^3z)\cdot(4\,bx^2yz^2)=32\,b^4x^4y^4z^3$

[4] $(-6\,b^3xy^3z)\cdot(-3\,b^3x^3y^2z^3)=18\,b^6x^4y^5z^4$

[5] $(-12\,b^2x^3y^2z^2)\cdot(-16\,bx^3yz)=192\,b^3x^6y^3z^3$

[6] $(15\,bx^3y^3z^3)\cdot(20\,b^2x^2yz^2)=300\,b^3x^5y^4z^5$

[7] $(216\,bxy^2z)\cdot(-24\,b^2x^3yz^3)=-5184\,b^3x^4y^3z^4$

[8] $(-1029\,b^3x^2y^3z^2)\cdot(-686\,b^2xyz^2)=705894\,b^5x^3y^4z^4$

[9] $(-2048\,b^3x^2y^2z^2)\cdot(-128\,b^3x^3yz^3)=262144\,b^6x^5y^3z^5$

[10] $(243\,b^2x^3yz)\cdot(-324\,b^2xy^2z^3)=-78732\,b^4x^4y^3z^4$

Ejercicio 4: Realiza las siguientes multiplicaciones de polinomios:

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

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

[3] $(-3\,x)\cdot(x^2-11\,x)=-3\,x^3+33\,x^2$

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

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

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

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

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

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

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

Ejercicio 5: Realiza las siguientes multiplicaciones de polinomios:

[1] $(-6\,x)\cdot(5\,x^2-4\,x)=-30\,x^3+24\,x^2$

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

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

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

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

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

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

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

[9] $(6\,x)\cdot(-x^2-7\,x)=-6\,x^3-42\,x^2$

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

[11] $(4\,x^2-x)\cdot(-7\,x^2+2\,x)=-28\,x^4+15\,x^3-2\,x^2$

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

[13] $(-6\,x)\cdot(2\,x^2+3\,x)=-12\,x^3-18\,x^2$

[14] $(-6\,x)\cdot(-4\,x^2-5\,x)=24\,x^3+30\,x^2$

[15] $(-5\,x^2)\cdot(-5\,x^2)=25\,x^4$

Ejercicio 6: Realiza las siguientes multiplicaciones de polinomios:

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

[2] $(x^2+3\,x)\cdot(-3\,x^3-x^2-3\,x)=-3\,x^5-10\,x^4-6\,x^3-9\,x^2$

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

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

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

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

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

[8] $(-6\,x)\cdot(x^3-3\,x^2-4\,x)=-6\,x^4+18\,x^3+24\,x^2$

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

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

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

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

[13] $(-7\,x^3+3\,x^2)\cdot(8\,x^3)=-56\,x^6+24\,x^5$

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

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

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

[17] $(4\,x^2+x)\cdot(-3\,x^3-2\,x^2-3\,x)=-12\,x^5-11\,x^4-14\,x^3-3\,x^2$

[18] $(2\,x^2)\cdot(-6\,x^3-2\,x)=-12\,x^5-4\,x^3$

[19] $(3\,x^3+3\,x^2+4\,x)\cdot(-2\,x^3+3\,x^2)=-6\,x^6+3\,x^5+x^4+12\,x^3$

[20] $(-3\,x^3+2\,x^2)\cdot(-x^3+4\,x^2+7\,x)=3\,x^6-14\,x^5-13\,x^4+14\,x^3$

Ejercicio 7: Realiza las siguientes multiplicaciones de polinomios:

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

[2] $(-3\,x^2y^2+4\,xy^2)\cdot(-4\,x^2y+2\,xy)=12\,x^4y^3-22\,x^3y^3+8\,x^2y^3$

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

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

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

[6] $(3\,x^2y^2)\cdot(-3\,x^2y^2-7\,x^2y)=-9\,x^4y^4-21\,x^4y^3$

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