1. Evaluación 1ºD - Funciones

Ejercicio 1: Realiza las siguientes sumas de polinomios:

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

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

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

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

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

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

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

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

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

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

Ejercicio 2: Realiza las siguientes sumas de polinomios:

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

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

[3] $4\,x^2y+6\,xy^2+-4\,x^2y^2+12\,xy^2+6\,xy+4\,x^2y^2-24\,xy=4\,x^2y+18\,xy^2-18\,xy$

[4] $9\,x^2y+9\,xy^2+-9\,x^2y+3\,xy^2-27\,xy+-9\,x^2y^2+9\,x^2y+9\,xy^2=-9\,x^2y^2+9\,x^2y+21\,xy^2-27\,xy$

[5] $4\,x^2y-8\,xy+-16\,x^2y+80\,xy^2+64\,x^2y-12\,xy=52\,x^2y+80\,xy^2-20\,xy$

[6] $15\,x^2y+20\,xy^2+-20\,x^2y-95\,xy^2+(-65\,x^2y^2+75\,x^2y)=-65\,x^2y^2+70\,x^2y-75\,xy^2$

[7] $180\,x^2y^2-6\,x^2y+-6\,x^2y^2-36\,x^2y-18\,xy^2+-18\,x^2y^2+108\,xy^2+12\,xy=156\,x^2y^2-42\,x^2y+90\,xy^2+12\,xy$

[8] $21\,x^2y^2-147\,xy^2-7\,xy+-7\,xy+-7\,x^2y^2+7\,x^2y=14\,x^2y^2+7\,x^2y-147\,xy^2-14\,xy$

[9] $184\,x^2y+192\,xy^2+-248\,x^2y+-384\,x^2y^2-32\,xy^2=-384\,x^2y^2-64\,x^2y+160\,xy^2$

[10] $225\,x^2y^2+324\,x^2y+9\,x^2y-162\,xy^2+324\,xy+-324\,x^2y^2+9\,x^2y=-99\,x^2y^2+342\,x^2y-162\,xy^2+324\,xy$

Ejerciio 3 Realiza las siguientes sumas y restas de polinomios:

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

[2] $2\,x^2y^2-5\,xy+4\,x^2y-2\,xy^2-xy-(-4\,x^2y+5\,xy^2)=2\,x^2y^2+8\,x^2y-7\,xy^2-6\,xy$

[3] $-4\,x^2y^2+-8\,x^2y+10\,xy^2-(4\,x^2y^2-8\,xy^2+8\,xy)=-8\,x^2y^2-8\,x^2y+18\,xy^2-8\,xy$

[4] $-9\,x^2y^2-9\,x^2y+36\,xy^2-(-9\,x^2y-18\,xy^2-3\,xy)+(36\,x^2y^2+9\,x^2y)=27\,x^2y^2+9\,x^2y+54\,xy^2+3\,xy$

[5] $-4\,xy^2+20\,xy+12\,x^2y^2+80\,xy-(-16\,x^2y^2+52\,xy)=28\,x^2y^2-4\,xy^2+48\,xy$

[6] $75\,x^2y-5\,xy^2+75\,x^2y+25\,xy-(85\,x^2y+25\,xy)=65\,x^2y-5\,xy^2$

[7] $24\,xy^2+96\,xy-(72\,x^2y-72\,xy^2+144\,xy)+(-12\,xy)=-72\,x^2y+96\,xy^2-60\,xy$

[8] $196\,xy^2-21\,xy+-140\,xy^2+98\,xy-(-28\,x^2y^2+147\,xy^2-28\,xy)=28\,x^2y^2-91\,xy^2+105\,xy$

[9] $8\,x^2y+160\,xy^2+-208\,xy^2+8\,xy-(-16\,x^2y-64\,xy^2)=24\,x^2y+16\,xy^2+8\,xy$

[10] $153\,x^2y^2-36\,x^2y-(-81\,x^2y^2)+(-486\,x^2y^2-81\,xy)=-252\,x^2y^2-36\,x^2y-81\,xy$

Ejercicio 3: Realiza las siguientes multiplicaciones de monomios:

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

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

[3] $(6\,b^2xyz^3)\cdot(-24\,bx^3yz^3)=-144\,b^3x^4y^2z^6$

[4] $(9\,b^3xy^2z^3)\cdot(-18\,bxy^3z^3)=-162\,b^4x^2y^5z^6$

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

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

[7] $(216\,b^3x^3y^2z^2)\cdot(-216\,bx^2y^3z^2)=-46656\,b^4x^5y^5z^4$

[8] $(1029\,bx^2y^2z^2)\cdot(-14\,b^3xy^2z)=-14406\,b^4x^3y^4z^3$

[9] $(8\,bxy^3z^3)\cdot(1536\,bx^2y^2z^2)=12288\,b^2x^3y^5z^5$

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

Ejercicio 4: Realiza las siguientes multiplicaciones de polinomios:

[1] $(3\,x^2)\cdot(-7\,x^2-3\,x)=-21\,x^4-9\,x^3$

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

[3] $(4\,x)\cdot(-4\,x^2+7\,x)=-16\,x^3+28\,x^2$

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

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

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

[7] $(-4\,x)\cdot(-2\,x^2+8\,x)=8\,x^3-32\,x^2$

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

[9] $(-4\,x)\cdot(-4\,x^2+2\,x)=16\,x^3-8\,x^2$

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

Ejercicio 5: Realiza las siguientes multiplicaciones de polinomios:

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

[2] $(-3\,x^2+2\,x)\cdot(x^2-8\,x)=-3\,x^4+26\,x^3-16\,x^2$

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

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

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

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

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

[8] $(8\,x^2)\cdot(-x^2+7\,x)=-8\,x^4+56\,x^3$

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

[10] $(4\,x^2-3\,x)\cdot(-5\,x^2+2\,x)=-20\,x^4+23\,x^3-6\,x^2$

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

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

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

[14] $(2\,x^2+4\,x)\cdot(3\,x^2+3\,x)=6\,x^4+18\,x^3+12\,x^2$

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

Ejercicio 6: Realiza las siguientes multiplicaciones de polinomios:

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

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

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

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

[5] $(6\,x^3)\cdot(2\,x^3+2\,x^2+5\,x)=12\,x^6+12\,x^5+30\,x^4$

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

[7] $(-4\,x^3-6\,x^2)\cdot(-x^3-2\,x^2-x)=4\,x^6+14\,x^5+16\,x^4+6\,x^3$

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

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

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

[11] $(2\,x^3+2\,x^2)\cdot(-6\,x^3-2\,x^2-x)=-12\,x^6-16\,x^5-6\,x^4-2\,x^3$

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

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

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

[15] $(6\,x^3)\cdot(-8\,x^2)=-48\,x^5$

[16] $(4\,x^3-3\,x^2)\cdot(-3\,x^3+2\,x)=-12\,x^6+9\,x^5+8\,x^4-6\,x^3$

[17] $(2\,x)\cdot(-4\,x^2-8\,x)=-8\,x^3-16\,x^2$

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

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

[20] $(4\,x^3-3\,x^2)\cdot(x^3+3\,x^2+x)=4\,x^6+9\,x^5-5\,x^4-3\,x^3$

Ejercicio 7: Realiza las siguientes multiplicaciones de polinomios:

[1] $(4\,x^2y-3\,xy)\cdot(-2\,x^2y^2+xy^2)=-8\,x^4y^3+10\,x^3y^3-3\,x^2y^3$

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

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

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

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

[6] $(0)\cdot(3\,x^2y^2)=0$

[7] $(-4\,x^2y-4\,xy^2)\cdot(-4\,x^2y^2+3\,xy^2)=16\,x^4y^3+16\,x^3y^4-12\,x^3y^3-12\,x^2y^4$