1. Evaluación 1ºD - Funciones

Ejercicio 1: Realiza las siguientes sumas de polinomios:

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

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

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

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

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

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

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

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

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

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

Ejercicio 2: Realiza las siguientes sumas de polinomios:

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

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

[3] $28\,x^2y^2+16\,xy^2+-6\,x^2y^2-8\,xy^2-6\,xy+(-2\,x^2y-2\,xy) = 22\,x^2y^2-2\,x^2y+8\,xy^2-8\,xy$

[4] $27\,x^2y^2+12\,x^2y-12\,xy^2+12\,x^2y+3\,xy^2+12\,xy+-3\,x^2y^2+12\,xy^2 = 24\,x^2y^2+24\,x^2y+3\,xy^2+12\,xy$

[5] $32\,x^2y^2+12\,xy^2-32\,xy+-12\,x^2y^2+48\,x^2y-16\,xy+64\,x^2y^2 = 84\,x^2y^2+48\,x^2y+12\,xy^2-48\,xy$

[6] $75\,x^2y^2+-5\,x^2y^2-50\,x^2y-15\,xy+-75\,x^2y^2-100\,x^2y-75\,xy = -5\,x^2y^2-150\,x^2y-90\,xy$

[7] $12\,x^2y+72\,xy^2-72\,xy+-24\,x^2y^2+30\,xy+18\,x^2y^2+108\,x^2y-6\,xy = -6\,x^2y^2+120\,x^2y+72\,xy^2-48\,xy$

[8] $49\,x^2y^2-14\,xy^2+14\,xy+-98\,x^2y-245\,xy^2+21\,x^2y^2+98\,x^2y+49\,xy^2 = 70\,x^2y^2-210\,xy^2+14\,xy$

[9] $24\,x^2y^2+256\,xy+8\,x^2y^2+24\,xy^2+16\,xy+192\,x^2y^2-224\,x^2y = 224\,x^2y^2-224\,x^2y+24\,xy^2+272\,xy$

[10] $324\,xy^2+-9\,x^2y+81\,xy^2+27\,xy+-18\,x^2y^2+27\,x^2y+9\,xy = -18\,x^2y^2+18\,x^2y+405\,xy^2+36\,xy$

Ejerciio 3 Realiza las siguientes sumas y restas de polinomios:

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

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

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

[4] $9\,x^2y^2+3\,x^2y+3\,xy^2-(27\,x^2y^2+27\,x^2y-9\,xy)+(36\,x^2y^2+6\,x^2y-3\,xy^2) = 18\,x^2y^2-18\,x^2y+9\,xy$

[5] $4\,x^2y^2+-96\,xy^2-16\,xy-(-44\,xy^2-8\,xy) = 4\,x^2y^2-52\,xy^2-8\,xy$

[6] $15\,x^2y + -5\,x^2y^2 - 25\,x^2y - 15\,xy^2 - (250\,x^2y) = -5\,x^2y^2 - 260\,x^2y - 15\,xy^2$

[7] $-108\,x^2y^2 + 108\,xy^2 - 12\,xy - (-48\,x^2y^2 + 144\,xy^2) + (-12\,x^2y^2 - 6\,x^2y - 144\,xy) = -72\,x^2y^2 - 6\,x^2y - 36\,xy^2 - 156\,xy$

[8] $126\,x^2y + 98\,x^2y^2 + 98\,xy^2 - 7\,xy - (14\,x^2y^2 - 98\,xy^2) = 84\,x^2y^2 + 126\,x^2y + 196\,xy^2 - 7\,xy$

[9] $24\,x^2y + 32\,xy^2 - 256\,xy + -232\,x^2y^2 - (-56\,x^2y^2 + 16\,x^2y) = -176\,x^2y^2 + 8\,x^2y + 32\,xy^2 - 256\,xy$

[10] $243\,x^2y^2 - 36\,x^2y + 18\,xy - (144\,x^2y - 162\,xy^2) + (-360\,x^2y^2) = -117\,x^2y^2 - 180\,x^2y + 162\,xy^2 + 18\,xy$

Ejercicio 3: Realiza las siguientes multiplicaciones de monomios:

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

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

[3] $(8\,b^3x^2y^3z) \cdot (-12\,b^2x^2yz^3) = -96\,b^5x^4y^4z^4$

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

[5] $(-32\,b^2x^3y^3z) \cdot (8\,b^3xyz^3) = -256\,b^5x^4y^4z^4$

[6] $(-375\,b^3x^2yz^2) \cdot (-20\,b^2x^3yz) = 7500\,b^5x^5y^2z^3$

[7] $(432\,b^3x^3y^2z) \cdot (108\,b^2xy^3z) = 46656\,b^5x^4y^5z^2$

[8] $(-147\,b^3x^3yz^3) \cdot (-147\,b^3x^2y^2z^3) = 21609\,b^6x^5y^3z^6$

[9] $(1536\,bx^3yz) \cdot (256\,b^2x^2y^3z^2) = 393216\,b^3x^5y^4z^3$

[10] $(18\,b^2x^3yz^3) \cdot (36\,b^2x^2yz^3) = 648\,b^4x^5y^2z^6$

Ejercicio 4: Realiza las siguientes multiplicaciones de polinomios:

[1] $(-3\,x^2) \cdot (-3\,x^2 + 6\,x) = 9\,x^4 - 18\,x^3$

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

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

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

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

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

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

[8] $(3\,x^2) \cdot (7\,x^2 + 3\,x) = 21\,x^4 + 9\,x^3$

[9] $(2\,x) \cdot (7\,x^2 - 2\,x) = 14\,x^3 - 4\,x^2$

[10] $(3\,x) \cdot (-4\,x^2 - 3\,x) = -12\,x^3 - 9\,x^2$

Ejercicio 5: Realiza las siguientes multiplicaciones de polinomios:

[1] $(-2\,x^2 + 3\,x) \cdot (7\,x^2 - 4\,x) = -14\,x^4 + 29\,x^3 - 12\,x^2$

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

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

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

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

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

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

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

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

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

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

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

[13] $(-8\,x)\cdot(x^2-2\,x)=-8\,x^3+16\,x^2$

[14] $(-3\,x^2-2\,x)\cdot(5\,x)=-15\,x^3-10\,x^2$

[15] $(-4\,x^2+3\,x)\cdot(-6\,x^2-2\,x)=24\,x^4-10\,x^3-6\,x^2$

Ejercicio 6: Realiza las siguientes multiplicaciones de polinomios:

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

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

[3] $(2\,x^3-3\,x^2)\cdot(-7\,x^3+x^2)=-14\,x^6+23\,x^5-3\,x^4$

[4] $(-2\,x^3+3\,x^2-3\,x)\cdot(2\,x^2+8\,x)=-4\,x^5-10\,x^4+18\,x^3-24\,x^2$

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

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

[7] $(-9\,x^2)\cdot(-2\,x^3)=18\,x^5$

[8] $(-3\,x^3)\cdot(10\,x^3-2\,x^2)=-30\,x^6+6\,x^5$

[9] $(7\,x)\cdot(4\,x^2)=28\,x^3$

[10] $(2\,x^3-3\,x)\cdot(-7\,x^3+3\,x^2)=-14\,x^6+6\,x^5+21\,x^4-9\,x^3$

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

[12] $(-3\,x^3+2\,x^2)\cdot(-4\,x^3+8\,x)=12\,x^6-8\,x^5-24\,x^4+16\,x^3$

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

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

[15] $(3\,x^3-4\,x)\cdot(x^3+6\,x)=3\,x^6+14\,x^4-24\,x^2$

[16] $(-8\,x^2+3\,x)\cdot(2\,x^3-3\,x^2)=-16\,x^5+30\,x^4-9\,x^3$

[17] $(3\,x^3+3\,x)\cdot(-x^3-4\,x^2-4\,x)=-3\,x^6-12\,x^5-15\,x^4-12\,x^3-12\,x^2$

[18] $(5\,x^3)\cdot(-7\,x^2+8\,x)=-35\,x^5+40\,x^4$

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

[20] $(-2\,x^2-x)\cdot(4\,x^3-x^2-3\,x)=-8\,x^5-2\,x^4+7\,x^3+3\,x^2$

Ejercicio 7: Realiza las siguientes multiplicaciones de polinomios:

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

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

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

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

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

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

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