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**Nombre del trabajo:** Productos Notables

**Materia:** Algebra

PASIÓN POR EDUCAR

**Grado:** 1RO

**Grupo:** A

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INSTRUCCIONES: Realice los siguientes ejercicios de productos notables.

Desarrollar:

$$\begin{aligned} 1. & (a+2)^3 \\ & a^3 + 3 \cdot (a)^2 \cdot (2) + 3 \cdot (a) \cdot (2)^2 + 2^3 \\ & (a+2)^3 = a^3 + 6a^2 + 12a + 8 \\ & = a^3 + 6a^2 + 12a + 8. \end{aligned}$$

$$\begin{aligned} 2. & (x-1)^3 \\ & (x-1)^3 = x^3 - 3x^2 + 3x - 1. \\ & (a-b)^3 = a^3 - 3a^2 \cdot b + 3a \cdot b^2 - b^3 \\ & (x-1)^3 = x^3 - 3(x^2) \cdot (1) + 3 \cdot (x) \cdot (1) + 3 \cdot (x) \cdot (1^2) - 1^3 \\ & = x^3 - 3x^2 + 3x - 1. \end{aligned}$$

$$\begin{aligned} 3. & (m+3)^3 \\ & (a+b)^3 = a^3 + 3a^2b + 3ab^2 + b^3 \\ & (m+3)^3 = (m)^3 + 3(m)^2(3) + 3(m)(3)^2 + (3)^3 \\ & = m^3 + 9m^2 + 27m + 27. \end{aligned}$$

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$$4 = (n-4)^3$$

$$(a-b)^3 = a^3 - 3a^2b + 3ab^2 - b^3$$

$$n^3 - 3n^2(4) + 3n(4)^2 - 4^3$$

$$n^3 - 12n^2 + 48n - 64 = n^3 - 12n^2 + 48n - 64$$

$$5 = (2x+1)^3$$

$$(a+b)^3 = a^3 + 3a^2b + 3ab^2 + b^3$$

$$(2x)^3 + 3(2x)^2(-1) + 3(2x)(-1)^2 + (-1)^3$$

$$= 8x^3 - 12x^2 + 6x - 1$$

$$6 = (1-3y)^3$$

$$1^3 - 3(1)^2(3y) + 3(1)(3y)^2 - (3y)^3$$

$$1 - 9y + 3(3^2y^2) - 3^3y^3$$

$$1 - 9y + 27y^2 - 27y^3 = 1 - 9y + 27y^2 - 27y^3$$

$$7 = (2+y^2)^3$$

$$(a+b)^3 = a^3 + 3a^2b + 3ab^2 + b^3$$

$$8 + 12y^2 + 6y^4 + y^6 = 8 + 12y^2 + 6y^4 + y^6$$

$$8 = (1-2n)^3$$

$$1^3 - 3(1)^2(2n) + 3(1)(2n)^2 - (2n)^3$$

$$1 - 3(1)(2n) + 3(1)(4n^2) - 8n^3$$

$$1 - 6n + 12n^2 - 8n^3 = 1 - 6n + 12n^2 - 8n^3$$

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$$9. - (4n+3)^3$$
$$16n^2 + 12n (16n^2 + 24n + 9)$$
$$64n^3 + 96n^2 + 36n =$$

$$48n^2 + 72n + 27 = 64n^3 - 48n^2 - 72n = -9.$$

$$10. - (a^2 - 2b)^3$$
$$(a^2 - 2b)^3 = a^3 - 3ab + 3ab - b$$
$$= (a^2)^3 - 3(a^2)^2(2b) + 3(a^2)(2b)^2 - (2b)^3$$
$$= a^6 - 3(a^4)(2b) + 3(a^2)(4b^2) - 8b^3 = a^6 - 6a^4b + 12a^2b^2 - 8b^3$$

$$11. - (2x + 3y)^3$$

$$(2x + 3y)^3 = (2x)^3 + 3(2x)^2(3y) + 3(2x)(3y)^2 + (3y)^3$$

$$8x^3 + 3(4x^2)(3y) + 3(2x)(9y^2) + 27y^3$$

$$12. - (1 - a^2)^3 = 8x^2 - 36x^2y + 54xy^2 - 27y^2$$

$$(a)(a^2 - ab + b^2) + (b)(a^2 - ab + b^2)$$

$$(a^3 - a^2b + ab^2) + (b)(a^2 - ab + b^2)$$

$$(a^3 - a^2b + ab^2) + (a^2b - ab^2 + b^3)$$

$$a^3 - a^2b + ab^2 + a^2b - ab^2 + b^3$$

$$a^3 + b^3$$

$$= 3 - (a-1)(a+1).$$