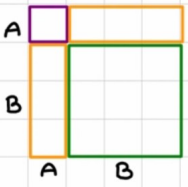
PRODOTTI NOTEVOLI

Titolo nota 02/02/2017

QUADRATO DEL BINOMIO $(A+B)^2 = (A+B)(A+B) = A^2+AB+AB+B^2 = A^2+2AB+B^2$



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

($A=2x$, $B=3y$; $A^2=(2x)^2$, $2AB=2\cdot 2x\cdot 3y$, $B^2=(3y)^2$)

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

($A=2x$, $B=-3y$; $A^2=(2x)^2$, $2AB=2\cdot 2x\cdot(-3y)$, $B^2=(-3y)^2$)

$\left(-2x^2+\frac{1}{2}xy\right)^2 = \left[(-2x^2)+\frac{1}{2}xy\right]^2 = (-2x^2)^2 + 2\cdot(-2x^2)\cdot\frac{1}{2}xy + \left(\frac{1}{2}xy\right)^2 = 4x^4-2x^3y+\frac{1}{4}x^2y^2$

($A=-2x^2$, $B=\frac{1}{2}xy$; $A^2=(-2x^2)^2$, $2AB=2\cdot(-2x^2)\cdot\frac{1}{2}xy$, $B^2=\left(\frac{1}{2}xy\right)^2$)

N.B.: $(A+B)^2 \neq A^2+B^2$ $\Longrightarrow$ IL QUADRATO DI UNA SOMMA NON È LA SOMMA DEI QUADRATI DEGLI ADDENDI!

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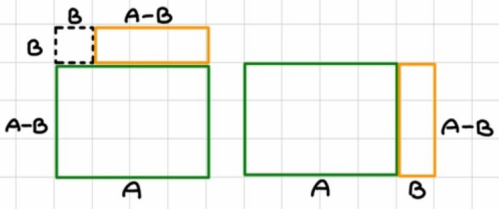
SOMMA PER DIFFERENZA $(A+B)(A-B) = A^2-AB+AB-B^2 = A^2-B^2$



$(3x+2y)(3x-2y) = (3x)^2-(2y)^2 = 9x^2-4y^2$

($A=3x$, $B=2y$; $A^2=(3x)^2$, $B^2=(2y)^2$)

$\left(\frac{2}{3}x-1\right)\left(\frac{2}{3}x+1\right) = \left(\frac{2}{3}x\right)^2-(1)^2 = \frac{4}{9}x^2-1$

($A=\frac{2}{3}x$, $B=1$; $A^2=\left(\frac{2}{3}x\right)^2$, $B^2=(1)^2$)

$(x+y+1)(x+y-1) = [(x+y)+1][(x+y)-1]$

($A=x+y$, $B=1$)

$= (x+y)^2-1^2 = x^2+2xy+y^2-1$

($A^2=(x+y)^2$, $B^2=1^2$)

$(-x^3+z)(-x^3-z) = (-x^3)^2-z^2 = x^6-z^2$

($A=-x^3$, $B=z$; $A^2=(-x^3)^2$, $B^2=z^2$)

N.B.: SE ENTRAMBI I TERMINI CAMBIANO DI SEGNO NON SI TRATTA DI UNA SOMMA PER DIFFERENZA

$(A-B)(B-A) = -(B-A)(B-A) = -(B-A)^2$

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