21/11/2019

152 $[(x^{2n})^{2n+3}] : [(x^n)^{n+2}]^3 - [2(x^n)^n - x^n] - (2x^n - x^{n^2}) =$

$= x^{2n(2n+3)} : [x^{n(n+2)}]^3 - [2x^{n^2} - x^n] - 2x^n + x^{n^2} =$

$= x^{4n^2+6n} : [x^{n^2+2n}]^3 - 2x^{n^2} + x^n - 2x^n + x^{n^2} =$

$= x^{4n^2+6n} : x^{(n^2+2n)\cdot 3} - x^{n^2} - x^n =$

$= x^{4n^2+6n} : x^{3n^2+6n} - x^{n^2} - x^n =$

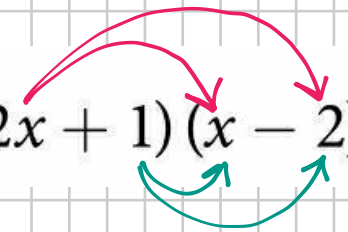
$= x^{4n^2+6n-(3n^2+6n)} - x^{n^2} - x^n =$

$= x^{4n^2+6n-3n^2-6n} - x^{n^2} - x^n =$

$= x^{n^2} - x^{n^2} - x^n = \boxed{-x^n}$

PRODOTTO DI POLINOMI

154 $(2x+1)(x-2) =$



Applico ripetutamente la proprietà distributiva

$2x(x-2) + 1\cdot(x-2) = \dots$

$= 2x^2 - 4x + x - 2 = 2x^2 - 3x - 2$

158 $(x^2+2y^2)(x-y) =$

$= x^3 - x^2y + 2xy^2 - 2y^3$

159 $x(x-1)(x+2) =$

$= x\left(x^2 + 2x - x - 2\right) = x\left(x^2 + x - 2\right) =$

$= x^3 + x^2 - 2x$

Sarebbe stato comunque corretto eseguire così:

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

$= x^3 + x^2 - 2x$

168 $(x-2)(x^2+1)(x+3) =$

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

$= x^4 + 3x^3 + x^2 + 3x - 2x^3 - 6x^2 - 2x - 6 =$

$= x^4 + x^3 - 5x^2 + x - 6$

162 $\left(\frac{1}{5}a^3 - \frac{1}{10}\right)(10a^3 - 5) =$

$= 2a^6 - a^3 - a^3 + \frac{1}{2} = 2a^6 - 2a^3 + \frac{1}{2}$

171 $(x^n - 1)(x^n + 4) =$

$= x^{2n} + 4x^n - x^n - 4 = x^{2n} + 3x^n - 4$

197 $(a^2 - a^3)(a - a^2) + (a + a^3)(a^2 - a) - a^3(2a^2 - 3a + 2) =$

$= a^3 - a^4 - a^4 + a^5 + a^3 - a^2 + a^5 - a^4 - 2a^5 + 3a^4 - 2a^3 =$

$= -a^2$

201 $(x^2 - 2x + 1)(x^2 - 2x - 1) - (x^2 + 1)(x^2 - 2) + (-2x)(-2x^2) =$

$= x^4 - 2x^3 - x^2 - 2x^3 + 4x^2 + 2x + x^2 - 2x - 1 -$

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

$= x^4 + 4x^2 - 1 - x^4 + 2x^2 - x^2 + 2 =$

$= 5x^2 + 1$

191

$$\left(\frac{1}{2}a-b\right)(2a+b)+\left(a-\frac{1}{2}b\right)(2a+b)-\left[a^2+\frac{1}{2}b^2-(2ab)^2:(-8ab)\right]=$$

$$=a^2+\frac{1}{2}ab-2ab-b^2+2a^2+ab-ab-\frac{1}{2}b^2-\left[a^2+\frac{1}{2}b^2-4a^2b^2:\right.$$
$$\left.:(-8ab)\right]=$$

$$=3a^2-\frac{3}{2}ab-\frac{3}{2}b^2-\left[a^2+\frac{1}{2}b^2+\frac{1}{2}ab\right]=$$

$$=3a^2-\frac{3}{2}ab-\frac{3}{2}b^2-a^2-\frac{1}{2}b^2-\frac{1}{2}ab=$$
$$=2a^2-2ab-2b^2$$

193 $\left[\frac{1}{3}(5x+y)-\frac{2}{3}(x+5y)\right][-x(x+2y)+(x-y)(x+2y)]-(-2y)(-3y^2)=$

$$=\left[\frac{5}{3}x+\frac{1}{3}y-\frac{2}{3}x-\frac{10}{3}y\right]\left[-x^2-2xy+x^2+2xy-xy-2y^2\right]-$$
$$-(6y^3)=$$

$$=[x-3y][-xy-2y^2]-6y^3=$$

$$=-x^2y-2xy^2+3xy^2+6y^3-6y^3=$$

$$=-x^2y+xy^2$$

206 $\left[(-6x^4):(-3x)-\frac{1}{3}(-3x)^6:(+3x)^5\right][(-4x^4):(-2x^2)+x+1]+x(1+x-2x^3)=$

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

$=\left[2x^3-x\right]\left[2x^2+x+1\right]+x+x^2-2x^4=$

$=4x^5+2x^4+2x^3-2x^3-x^2-x+x+x^2-2x^4=4x^5$

208 $(a^n+1)(a^n-2)-(a^n-1)(a^n+2)+a^n(a^n+2)=$

$=a^{2n}-2a^n+a^n-2-\left(a^{2n}+2a^n-a^n-2\right)+a^{2n}+2a^n=$

$=2a^{2n}+a^n-2-a^{2n}-2a^n+a^n+2=a^{2n}$

204 $(a-b-3)(a+b+3)-(a^2-b^2+4)-3(-2b-3)=$

$=a^2+ab+3a-ab-b^2-3b-3a-3b-9-a^2+b^2-4+$

$+6b+9=-4$