2.1.1 l

2.1.2 g

2.1.3 k

2.1.4 e

13 38

2.11 l

$$\left(u+\frac{v}{4}\right)\left(\frac{3u}{4}-\frac{5v}{6}\right) = \frac{3u^2}{4}-\frac{5uv}{6}+\frac{3uv}{16}-\frac{5v^2}{24}$$

$$= \frac{3u^2}{4}-\frac{40uv-9uv}{48}-\frac{5v^2}{24}$$

$$= \frac{3u^2}{4}-\frac{31uv}{48}-\frac{5v^2}{24}$$

2.1.2 g

a^3+b^3

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

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

$-\frac{62uv}{96}$

2.1.3 k

$b^6 - c^9$

$b^4c^5 + b^6 + b^2c^6$

$-b^2c^6 - b^4c^5 - c^9$

2.1.4 e

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

$9x^2 - y^2 - (9x^2 + 12xy + 4y^2) - (x^2 - 6xy + 9y^2) =$

$-14y^2 - 6xy - x^2$

15^{43}

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

$9x^2 - y^2 - 9x^2 - 12xy - 4y^2 - x^2 + 6xy - 9y^2 =$

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

$9x^2 - 9x^2 - x^2 - y^2 - 4y^2 - 9y^2 - 12xy + 6xy$

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

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

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

$(A+B)^2 = A^2 + 2AB + B^2$

$$(3x)^2 - y^2 - (9x^2 + 12xy + 4y^2) - (x^2 - 6xy + 9y^2) =$$

$$9x^2 - y^2 - 9x^2 - 12xy - 4y^2 - x^2 + 6xy - 9y^2 =$$

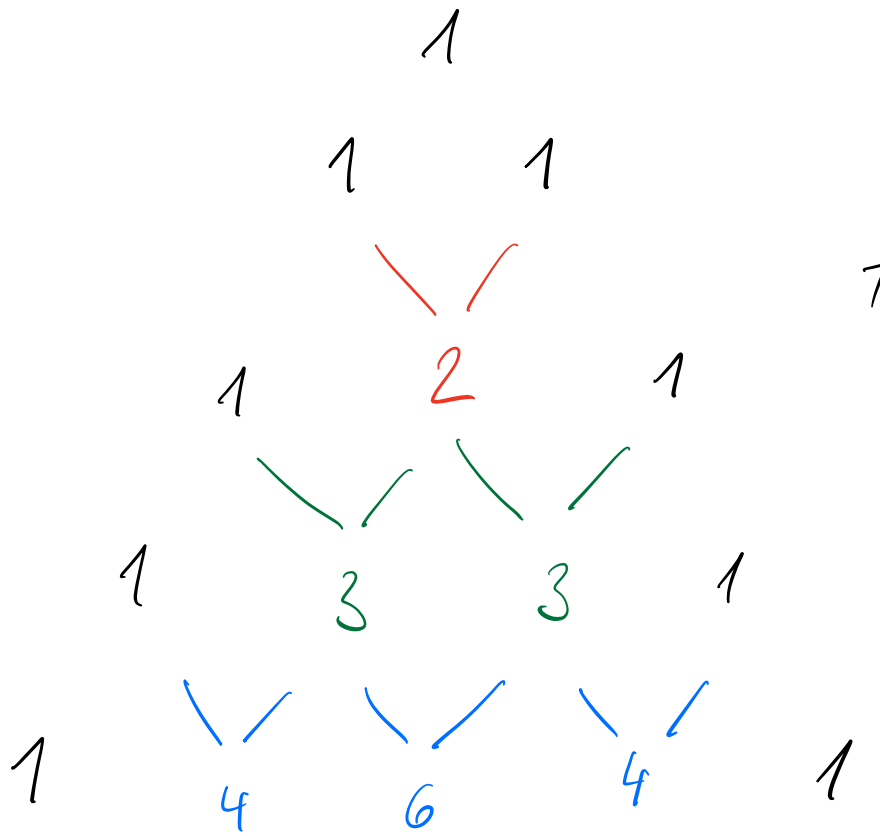
$$-x^2 - 14y^2 - 6xy$$

$$(A+B)^3 = A^3 + 3A^2B + 3AB^2 + B^3$$

$$(A+B)(A+B)^2 = (A+B)(A^2+2AB+B^2)$$

$$= A^3 + 2A^2B + AB^2 + A^2B + 2AB^2 + B^3$$

$$= A^3 + 3A^2B + 3AB^2 + B^3$$



triangle de Pascal

2.1.6

$$p = 2x^3 - 3x^2 + 5x - 1$$

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

a) $p + q$

$$\begin{array}{r} 2x^3 - 3x^2 + 5x - 1 \\ + \quad 3x^3 + 2x^2 - 4x + 2 \\ \hline 5x^3 - x^2 + x + 1 \end{array}$$

b) $p \cdot q$

$$(2x^3 - 3x^2 + 5x - 1)(3x^3 + 2x^2 - 4x + 2)$$

$$6x^6 + A \cdot x^5 + B \cdot x^4 + C \cdot x^3 + Dx^2 + Ex - 2$$

	$2x^3$	$-3x^2$	$+5x$	-1
$3x^3$	$6x^6$		$15x^4$	
$2x^2$		$-6x^4$		
$-4x$	$-8x^4$			
2				-2

$$B = 15 - 6 - 8 = 1$$

$$p \cdot q = 6x^6 + \ldots + 1x^4 + \ldots - 2$$

2.1.8

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

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

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

	$3x^2$	$-4x$	3
$3x^2$	$9x^4$	$-12x^3$	$9x^2$
$-4x$	$-12x^3$	$16x^2$	$-12x$
3	$9x^2$	$-12x$	9

$$\Rightarrow (a(x))^2 = 9x^4 - 24x^3 + 34x^2 - 24x + 9$$

$$(A+B+C)^2 = A^2 + B^2 + C^2 + 2AB + 2AC + 2BC$$

$$(2x-3y)^3 = 8x^3 - 3\cdot 4x^2\cdot 3y + 3\cdot 2x\cdot 9y^2 - 27y^3$$

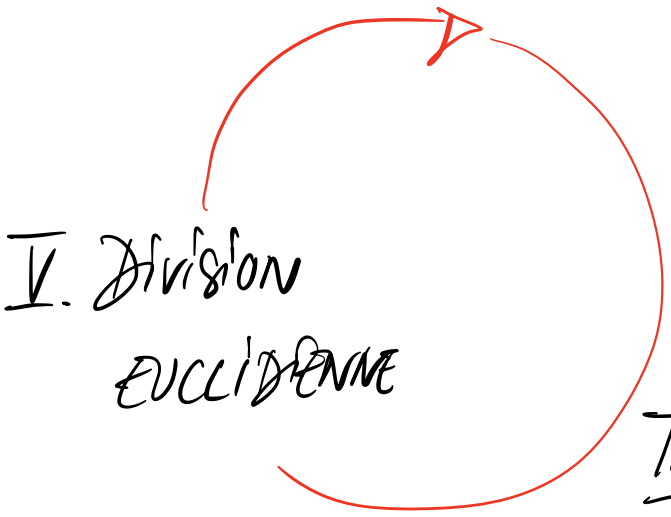
$$= 8x^3 - 36x^2y + 54xy^2 - 27y^3$$

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

$$4x^2 - 8x + 4 = (2x-2)^2$$

$$2x - 2y = 2(x-y)$$

I. Mise en évidence



$2x^2+bx+c$

$= 2(x-x_1)(x-x_2)$

$$x^4-y^4 = (x^2)^2-(y^2)^2$$

↓ ID. REM.

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

↓ ID. REM.

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

2.1.8

p.9

	x^4	$2x^3$	$-2x^2$	$-4x$	$+17$
$2x^3$	$2x^7$			$-8x^4$	
$-3x^2$					
$-5x$					
$+18$					

c) Le degré de p·q est 7.

d) Le coefficient du terme de degré 7 est 2