

2.1.1 b)

$$\frac{3u^2}{4} - \frac{5uv}{6} + \frac{3w}{16} - \frac{5v^2}{24} =$$

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

$$\frac{3u^2}{4} + \frac{-80 + 18}{96}uv - \frac{5v^2}{24} =$$

$$\frac{3u^2}{4} - \frac{62}{96}uv - \frac{5v^2}{24} =$$

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

2.1.3 d)

$$(2m - 5n)(4m^2 + 10mn + 25n^2) = (2m)^3 - (5n)^3$$
$$(A - B)(A^2 + A \cdot B + B^2) = A^3 - B^3$$
$$\begin{array}{ccccccc} 2m & 5n & (2m)^2 & 2m \cdot 5n & (5n)^2 & & \\ & & & & & & \\ & & & & & & \end{array} = 8m^3 - 125n^3$$

2.1.3 k)

$$(b^2 - c^3)(b^2c^3 + b^4 + c^6) =$$
$$(b^2 - c^3)(b^4 + b^2c^3 + c^6) =$$
$$(b^2 - c^3)((b^2)^2 + b^2 \cdot c^3 + (c^3)^2) = (b^2)^3 - (c^3)^3$$
$$(A - B)(A^2 + AB + B^2) = A^3 - B^3$$
$$\begin{array}{ccccccc} b^2 & c^3 & (b^2)^2 & (b^2) \cdot (c^3) & (c^3)^2 & & \\ & & & & & & \\ & & & & & & \end{array} = b^6 - c^9$$

2.1.4 b)

$$A^2 - B^2$$

$$(A+B)(A-B)$$

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

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

$$(A+B) \cdot (A-B) = A^2 - B^2 \quad (A-B)^2 = A^2 - 2AB + B^2$$

$$(x^2 + 4y^2)(x^2 - 4y^2) - ((x^2)^2 - 2x^2 \cdot (2y^2) + (2y^2)^2) =$$

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

$$\cancel{x^4} - 16y^4 - \cancel{x^4} + 4x^2y^2 - 4y^4 =$$

$$4x^2y^2 - 20y^4$$

2.1.5 d)

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

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

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

$$(2a)^3 - 3(2a)^2 \cdot 3b + 3 \cdot 2a \cdot (3b)^2 - (3b)^3$$

$$- ((2a)^2 - 2 \cdot 2a \cdot 3b + (3b)^2) - 2a + 3b =$$

$$8a^3 - 36a^2b + 54ab^2 - 27b^3 - 4a^2 + 12ab - 9b^2$$

$$- 2a + 3b$$

2.1.9 g)

$$(x-3)(x+4) = x^2 + 4x - 3x - 12 = x^2 + x - 12$$

	x^2	$+x$	-12
x	x^3	x^2	$-12x$
-5	$-5x^2$	$-5x$	$+60$

$$(x-5)(x^2+x-12) = x^3 - 4x^2 - 17x + 60$$

	x^3	$-4x^2$	$-17x$	$+60$
x	x^4	$-4x^3$	$-17x^2$	$+60x$
6	$6x^3$	$-24x^2$	$-102x$	$+360$

$$(x-3)(x+4)(x-5)(x+6) = x^4 + 2x^3 - 41x^2 - 42x + 360$$

2.1.10 i

	x^3	x^2	x	1	
x^3	x^6	x^5	x^4	x^3	0
$-x^2$	$-x^5$	$-x^4$	$-x^3$	$-x^2$	$-x^2$
x	x^4	x^3	x^2	x	0
-1	$-x^3$	$-x^2$	$-x$	-1	-1

Le resultat est:

$$x^6 + x^4 - x^2 - 1$$