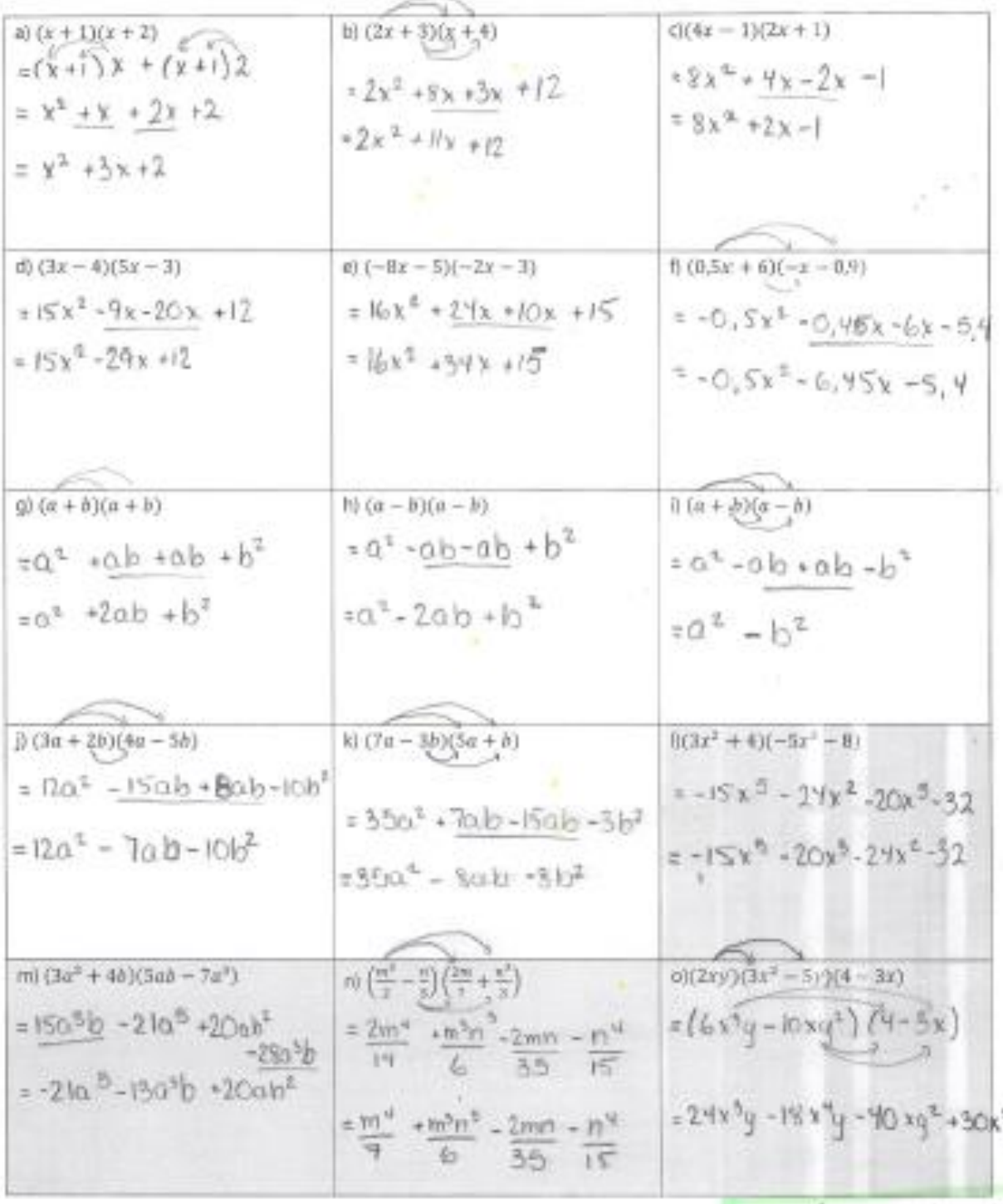
Corrigé du document de révision d'algèbre #1

1.



a) $(x+1)(x+2)$

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

$=x^2+x+2x+2$

$=x^2+3x+2$

b) $(2x+3)(x+4)$

$=2x^2+8x+3x+12$

$=2x^2+11x+12$

c) $(4x-1)(2x+1)$

$=8x^2+4x-2x-1$

$=8x^2+2x-1$

d) $(3x-4)(5x-3)$

$=15x^2-9x-20x+12$

$=15x^2-29x+12$

e) $(-8x-5)(-2x-3)$

$=16x^2+24x+10x+15$

$=16x^2+34x+15$

f) $(0,5x+6)(-x-0,9)$

$=-0,5x^2-0,45x-6x-5,4$

$=-0,5x^2-6,45x-5,4$

g) $(a+b)(a+b)$

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

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

h) $(a-b)(a-b)$

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

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

i) $(a+b)(a-b)$

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

$=a^2-b^2$

j) $(3a+2b)(4a-5b)$

$=12a^2-15ab+8ab-10b^2$

$=12a^2-7ab-10b^2$

k) $(7a-3b)(5a+b)$

$=35a^2+7ab-15ab-3b^2$

$=35a^2-8ab-3b^2$

l) $(3x^2+4)(-5x^3-8)$

$=-15x^5-24x^2-20x^3-32$

$=-15x^5-20x^3-24x^2-32$

m) $(3a^2+4b)(5ab-7a^3)$

$=15a^3b-21a^5+20ab^2-28a^3b$

$=-21a^5-13a^3b+20ab^2$

n) $\left(\frac{m^2}{3}-\frac{n}{5}\right)\left(\frac{2m}{7}+\frac{n^2}{3}\right)$

$=\frac{2m^4}{14}+\frac{m^2n^2}{6}-\frac{2mn}{35}-\frac{n^4}{15}$

$=\frac{m^4}{9}+\frac{m^2n^2}{6}-\frac{2mn}{35}-\frac{n^4}{15}$

o) $(2xy^2)(3x^2-5y)(4-3x)$

$=(6x^3y-10xy^2)(4-3x)$

$=24x^3y-18x^4y-40xy^2+30x^2$

3.

a) $3x + 6$ $= 3(x + 2)$	b) $22m - 55$ $= 11(2m - 5)$	c) $54m - 36n$ $= 18(3m - 2n)$
d) $42v + 18w$ $6(7v + 3w)$	e) $-4x - 6y$ $= -2(2x + 3y)$ ou $= 2(-2x - 3y)$	f) $ab + a$ $= a(b + 1)$
g) $3a^2 - 9a$ $= 3a(a - 3)$	h) $mn - m^2$ $= m(n - m)$	i) $18v - 21v^2$ $= 3v(6 - 7v)$
j) $14s^3 + 49s^2t$ $= 7s^2(2s + 7t)$	k) $-34mn^8 + 14m^8n$ $= -2mn(17n^7 - 7m^7)$ ou $= 2mn(-17n^7 + 7m^7)$	l) $4x + 6y - 8$ $= 2(2x + 3y - 4)$
m) $12m - 21n - 18$ $= 3(4m - 7n - 6)$	n) $r^2s^3 + r^3s^2 - r^7s$ $= r^2s(s^2 + rs - r^5)$	o) $12x^3 - 18x^6 + 36x^4$ $= 6x^3(2 - 3x^3 + 6x)$

4.

$$(a - b)^2$$

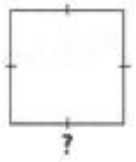
$$= (a - b)(a - b)$$

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

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

5.

a) Périmètre = $16x^2 - 8x$



$\frac{P}{4} = \frac{4c}{4}$

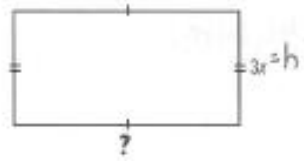
$\frac{P}{4} = c$

$C = \frac{16x^2 - 8x}{4}$

$C = \frac{16x^2}{4} - \frac{8x}{4}$

$\boxed{C = 4x^2 - 2x}$

b) Aire = $12x^3 - 18x$



$A = b \cdot h$

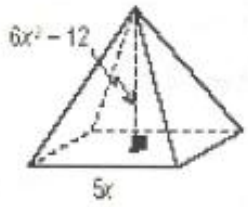
$\frac{A}{h} = b$

$b = \frac{12x^3 - 18x}{3x}$

$b = \frac{12x^3}{3x} - \frac{18x}{3x}$

$\boxed{b = 4x^2 - 6}$

6.



1) $Ab = c^2$

$Ab = (5x)^2$

$Ab = 5x \cdot 5x$

$Ab = 25x^2$

2) $V = \frac{Ab \cdot h}{3}$

$V = \frac{25x^2(6x^2 - 12)}{3}$

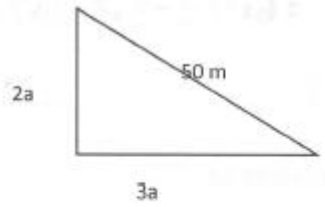
$V = \frac{150x^2 - 300}{3}$

$V = \frac{150x^2}{3} - \frac{300}{3}$

$V = 50x^2 - 100$

Rep. L'expression algébrique représentant le volume est $(50x^2 - 100)\,u^3$.

7.



1) $c^2 = a^2 + b^2$

$50^2 = (2a)^2 + (3a)^2$

$2500 = 4a^2 + 9a^2$ ← Attention

$\frac{2500}{13} = \frac{13a^2}{13}$

$\sqrt{192,31} = \sqrt{a^2}$

$13,87m \approx a$

2) $2a \approx 2 \cdot 13,87 \approx 27,74m$

$3a \approx 3 \cdot 13,87 \approx 41,61m$

Réponse: les cathètes mesurent environ 27,74m et 41,61m.