

1 Manipulation dans une expression

Correction 1

$$(a) 3(x + 2) = \boxed{3x + 6}$$

$$(b) 2(7x - 5) = \boxed{14x - 10}$$

$$(c) -6(2 - 5x) = \boxed{-12 + 30x}$$

$$(d) 3(x + 2) - 6(2 - 5x) = 3x + 6 - 12 + 30x = \boxed{33x - 6}$$

$$(e) (x - 1)(x + 9) = x^2 + 9x - x - 9 = \boxed{x^2 + 8x - 9}$$

$$(f) (-t + 6)(2t + 8) = -2t^2 - 8t + 12t + 48 = \boxed{-2t^2 + 4t + 48}$$

$$(g) (2x - 1)(2x + 1) = (2x)^2 - (1)^2 = \boxed{4x^2 - 1}$$

$$(h) (2x - 1)^2 = (2x)^2 - 2(2x)(1) + (1)^2 = \boxed{4x^2 - 4x + 1}$$

$$(i) (2x + 1)^2 = (2x)^2 + 2(2x)(1) + (1)^2 = \boxed{4x^2 + 4x + 1}$$

$$(j) (2x + 3)(4x - 7) - 2x = 8x^2 - 14x + 12x - 21 - 2x = \boxed{8x^2 - 4x - 21}$$

Correction 2

1.

$$\begin{aligned}(x + 1)(x - 1) - (x + 2)(x - 2) &= (x + 1)(x - 1) - [(x + 2)(x - 2)] \\ &= x^2 - x + x - 1 - [x^2 - 2x + 2x - 4] \\ &= x^2 - 1 - [x^2 - 4] \\ &= x^2 - 1 - x^2 + 4 \\ &= -1 + 4 \\ &= \boxed{3}\end{aligned}$$

2. On reconnaît l'expression précédente avec $x = 296$, donc $297 \times 295 - 298 \times 294 = 3$

Correction 3

1.

$$\begin{aligned}(a+5)^2 - (a-5)^2 &= (a+5)^2 - [(a-5)^2] \\ &= a^2 + 2 \times a \times 5 + 5^2 - [a^2 - 2 \times a \times 5 + 5^2] \\ &= a^2 + 2 \times a \times 5 + 5^2 - a^2 + 2 \times a \times 5 - 5^2 \\ &= 10a + 10a \\ &= 20a\end{aligned}$$

2. $10\,005^2 - 9\,995^2 = (10\,000 + 5)^2 - (10\,000 - 5)^2 = 20 \times 10\,000 = 200\,000$

Correction 4

A venir

Correction 5

Factoriser les expressions suivantes :

(a) $x^2 + x = \boxed{x(x+1)}$

(b) $x^2 - 2x = \boxed{x(x-2)}$

(c) $(x+1)^2 + (x+1)(x-3) = (x+1)(x+1+x-3) = \boxed{(x+1)(2x-2)}$

(d)

$$\begin{aligned}(-2x+1)(x+2) - (x+2)(x+3) &= (x+2)(-2x+1 - (x+3)) \\ &= (x+2)(-2x+1-x-3) \\ &= \boxed{(x+2)(-3x-2)}\end{aligned}$$

Correction 6

(a)

$$\begin{aligned}(x+1)^3 - (x+1)^2 &= (x+1)^2(x+1) - (x+1)^2 \\ &= (x+1)^2(x+1-1) \\ &= (x+1)^2(x) \\ &= \boxed{x(x+1)^2}\end{aligned}$$

(b)

$$\begin{aligned}(x-2)^4 - (x-2)^2(x+3) &= (x-2)^2[(x-2)^2 - (x+3)] \\ &= (x-2)^2[x^2 - 4x + 4 - x - 3] \\ &= \boxed{(x-2)^2(x^2 - 5x + 1)}\end{aligned}$$