☺ **Exercice p 40, n° 19 :**

Développer chaque expression :

a) $a(x+2)$;   **b)** $-3(a+4)$;   **c)** $x(3-5a)$;   **d)** $-2b(-a+b)$;

e) $2x(x+3)$;   **f)** $-3y(y+5)$;   **g)** $-2x(x^2-7)$;   **h)** $-7y^2(-5-2y^2)$.

Correction :

a) $A=a(x+2)$ b) $B=-3(a+4)$ c) $C=x(3-5a)$ d) $D=-2b(-a+b)$

   $\boxed{A=ax+2a}$. $\boxed{B=-3a-12}$. $\boxed{C=3x-5ax}$. $\boxed{D=2ab-2b^2}$.

e) $E=2x(x+3)$ f) $F=-3y(y+5)$ g) $G=-2x(x^2-7)$ h) $H=-7y^2(-5-2y^2)$

   $\boxed{E=2x^2+6x}$. $\boxed{F=-3y^2-15y}$. $\boxed{G=-2x^3+14x}$. $\boxed{H=35y^2+14y^4}$.☺

☺ **Exercice p 40, n° 20 :**

Développer, puis réduire chaque expression :

a) $A=3x+2+2(7+4x)$;   **b)** $B=4x+9+6(-7+x)$;

c) $C=2(1+3x^2)+x(4x-5)$;   **d)** $D=-3(a+2)+5(a-3)$.

Correction :

a) $A=3x+2+2(7+4x)$ b) $B=4x+9+6(-7+x)$

   $A=3x+2+14+8x$ $B=4x+9-42+6x$

   $\boxed{A=11x+16}$. $\boxed{B=10x-33}$.

c) $C=2(1+3x^2)+x(4x-5)$ d) $D=-3(a+2)+5(a-3)$

   $C=2+6x^2+4x^2-5x$ $D=-3a-6+5a-15$

   $\boxed{C=10x^2-5x+2}$. $\boxed{D=2a-21}$.

☺ **Exercice p 40, n° 21 :**

Développer, puis réduire chaque expression :

a) $A=5x+7-3(8+5x)$;   **b)** $B=-7x+3-9(-2+x)$;

c) $C=3(1+6x^2)-4(4x^2-5)$;   **d)** $D=-4,1(2+x)-2,5x(-3-0,2x)$.

Correction :

a) $A=5x+7-3(8+5x)$ b) $B=-7x+3-9(-2+x)$

   $A=5x+7-24-15x$ $B=-7x+3+18-9x$

   $\boxed{A=-10x-17}$. $\boxed{B=-16x+21}$.

c) $C = 3(1+6x^2)-4(4x^2-5)$

$C = 3+18x^2-16x^2+20$

$\boxed{C = 2x^2+23}$.

d) $D = -4,1(2+x)-2,5x(-3-0,2x)$

$D = -8,2-4,1x+7,5x+0,5x^2$

$\boxed{D = 0,5x^2+3,4x-8,2}$.

☺ **Exercice p 40, n° 22 :**

Développer, puis réduire chaque expression :

a) $A = 2(4x-5)+(5x+7)-3(8+5x)$;   **b)** $B = 9(x-8)-(x^2-3x)-7(x-9)$;

c) $C = -3(1+4x)-4(5x+8)+x(4x-7)$;   **d)** $D = -5(-1+3x^2)-x(5+x)-2x(3-2x)$.

Correction :

a) $A = 2(4x-5)+(5x+7)-3(8+5x)$

$A = 8x-10+5x+7-24-15x$

$\boxed{A = -2x-27}$.

b) $B = 9(x-8)-(x^2-3x)-7(x-9)$

$B = 9x-72-x^2+3x-7x+63$

$\boxed{B = -x^2+5x-9}$.

c) $C = -3(1+4x)-4(5x+8)+x(4x-7)$

$C = -3-12x-20x-32+4x^2-7x$

$\boxed{C = 4x^2-39x-35}$.

d) $D = -5(-1+3x^2)-x(5+x)-2x(3-2x)$

$D = 5-15x^2-5x-x^2-6x+4x^2$

$\boxed{D = 5-11x-12x^2}$.

☺ **Exercice p 40, n° 23 :**

Développer, puis réduire, si possible, chaque expression :

a) $(x+5)(x+1)$;   **b)** $(2x-5)(x+4)$;   **c)** $(2x-3)(3x-8)$;

d) $-(1+2x)(9x+1)$;   **e)** $-(2x+5)(3x-8)$;   **f)** $-\left(3x-\dfrac{3}{7}\right)(7x-14)$;

Correction :

a) $A = (x+5)(x+1)$

$A = x^2+x+5x+5$

$\boxed{A = x^2+6x+5}$.

b) $B = (2x-5)(x+4)$

$B = 2x^2+8x-5x-20$

$\boxed{B = 2x^2+3x-20}$.

c) $C = (2x-3)(3x-8)$

$C = 6x^2-16x-9x+24$

$\boxed{C = 6x^2-25x+24}$.

d) $D = -(1+2x)(9x+1)$

$D = -(9x+1+18x^2+2x)$

$D = -(18x^2+11x+1)$

$\boxed{D = -18x^2-11x-1}$.

e) $E = -(2x+5)(3x-8)$

$E = -(6x^2-16x+15x-40)$

$E = -(6x^2-x-40)$

$\boxed{E = -6x^2+x+40}$.

f) $F = -\left(3x-\dfrac{3}{7}\right)(7x-14)$

$F = -(21x^2-42x-3x+6)$

$F = -(21x^2-45x+6)$

$\boxed{F = -21x^2+45x-6}$.

☺ **Exercice p 40, n° 24 :**

Développer, puis réduire, si possible, chaque expression :

a) $A = 4x + (2x+1)(5x-3)$;   **b)** $B = (x+3)(y+9) + 10x - 7$;

c) $C = (3x-5)(7+6x) - (7+x)$;   **d)** $D = 5x + 1 - (x+4)(x-9)$.

Correction :

a) $A = 4x + (2x+1)(5x-3)$

    $A = 4x + 10x^2 - 6x + 5x - 3$

    $\boxed{A = 10x^2 + 3x - 3.}$

b) $B = (x+3)(y+9) + 10x - 7$

    $B = xy + 9x + 3y + 27 + 10x - 7$

    $\boxed{B = xy + 19x + 3y + 20.}$

c) $C = (3x-5)(7+6x) - (7+x)$

    $C = 21x + 18x^2 - 35 - 30x - 7 - x$

    $\boxed{C = 18x^2 - 10x - 42.}$

d) $D = 5x + 1 - (x+4)(x-9)$

    $D = 5x + 1 - \left[x^2 - 9x + 4x - 36 \right]$

    $D = 5x + 1 - \left[x^2 - 5x - 36 \right]$

    $D = 5x + 1 - x^2 + 5x + 36$

    $\boxed{D = 37 + 10x - x^2.}$

☺ **Exercice p 40, n° 25 :**

Développer, puis réduire, si possible, chaque expression :

a) $A = 3(x+2) + (7+4x)(7-6x)$;   **b)** $B = 4(x+9) - (7+x)(x+1)$;

c) $C = -2(1-3x) - (3x+2)(x-5)$;   **d)** $D = -3(a^2+2) - (a-3)(2a+7)$.

Correction :

a) $A = 3(x+2) + (7+4x)(7-6x)$

    $A = 3x + 6 + \left[49 - 42x + 28x - 24x^2 \right]$

    $A = 3x + 6 + 49 - 14x - 24x^2$

    $\boxed{A = 55 - 11x - 24x^2.}$

b) $B = 4(x+9) - (7+x)(x+1)$

    $B = 4x + 36 - \left[7x + 7 + x^2 + x \right]$

    $B = 4x + 36 - \left[8x + 7 + x^2 \right]$

    $B = 4x + 36 - 8x - 7 - x^2$

    $\boxed{B = 29 - 4x - x^2.}$

c) $C = -2(1-3x) - (3x+2)(x-5)$

    $C = -2 + 6x - \left[3x^2 - 15x + 2x - 10 \right]$

    $C = -2 + 6x - \left[3x^2 - 13x - 10 \right]$

    $C = -2 + 6x - 3x^2 + 13x + 10$

    $\boxed{C = 8 + 19x - 3x^2.}$

d) $D = -3(a^2+2) - (a-3)(2a+7)$

    $D = -3a^2 - 6 - \left[2a^2 + 7a - 6a - 21 \right]$

    $D = -3a^2 - 6 - \left[2a^2 + a - 21 \right]$

    $D = -3a^2 - 6 - 2a^2 - a + 21$

    $\boxed{D = 15 - a - 5a^2.}$

☺ **Exercice p 40, n° 26 :**

Développer, puis réduire, si possible, chaque expression :

a) $A = -5(x+5)+(3x-1)(-4x+3)+7x-9$; **b)** $B = 2(7x^2-1)-(4+x)(x-6)-(x+7)$;

c) $C = 7-5(2x+1)-(8-4x)(2x+9)$.

Correction :

a) $A = -5(x+5)+(3x-1)(-4x+3)+7x-9$

$A = -5x-25+\left[-12x^2+9x+4x-3\right]+7x-9$

$A = -5x-25-12x^2+13x-3+7x-9$

$\boxed{A = -12x^2+15x-37}$.

b) $B = 2(7x^2-1)-(4+x)(x-6)-(x+7)$

$B = 14x^2-2-\left[4x-24+x^2-6x\right]-x-7$

$B = 14x^2-2-\left[-2x-24+x^2\right]-x-7$

$B = 14x^2-2+2x+24-x^2-x-7$

$\boxed{B = 13x^2+x+15}$.

c) $C = 7-5(2x+1)-(8-4x)(2x+9)$

$C = 7-10x-5-\left[16x+72-8x^2-36x\right]$

$C = 7-10x-5-\left[72-8x^2-20x\right]$

$C = 7-10x-5-72+8x^2+20x$

$\boxed{C = 8x^2+10x-70}$.

☺ **Exercice p 40, n° 27 :**

Développer, puis réduire, si possible, chaque expression :

a) $A = (x+4)(x-6)+(-1+x)(x-7)$; **b)** $B = (x-1)(5x-2)-(-6+3x)(-1+x)$;

c) $C = -(3x-8)(x+4)-(7x-8)(-1+7x)$; **d)** $D = -(2x-5)(3-4x)+(6x-9)(-2x-1)$.

Correction :

a) $A = (x+4)(x-6)+(-1+x)(x-7)$

$A = x^2-6x+4x-24+\left[-x+7+x^2-7x\right]$

$A = x^2-2x-24-8x+7+x^2$

$\boxed{A = 2x^2-10x-17}$.

b) $B = (x-1)(5x-2)-(-6+3x)(-1+x)$

$B = 5x^2-2x-5x+2-\left[6-6x-3x+3x^2\right]$

$B = 5x^2-7x+2-\left[6-9x+3x^2\right]$

$B = 5x^2-7x+2-6+9x-3x^2$

$\boxed{B = 2x^2+2x-4}$.

c) $C = -(3x-8)(x+4)-(7x-8)(-1+7x)$

$C = (8-3x)(x+4)-\left[-7x+49x^2+8-56x\right]$

$C = 8x+32-3x^2-12x-\left[-63x+49x^2+8\right]$

$C = -4x+32-3x^2+63x-49x^2-8$

$\boxed{C = 24+59x-52x^2}$.

d) $D = -(2x-5)(3-4x)+(6x-9)(-2x-1)$

$D = (5-2x)(3-4x)+(6x-9)(-2x-1)$

$D = 15-20x-6x+8x^2+\left[-12x^2-6x+18x+9\right]$

$D = 15-26x+8x^2-12x^2+12x+9$

$\boxed{D = 24-14x-4x^2}$.