

Correction SOUTIEN 2 – DEVELOPPEMENT et EQUATIONS du 1^{er} degré

Exercice 1

Développer et réduire les expressions suivantes

$$A = -(3 - 2x) = 2x - 3 \quad B = 3(4 - 6x) = -18x + 12$$

$$C = -2x(5x + 7) = -10x^2 - 14x$$

$$D = 8x(x - 3) - (4 - 3x) = 8x^2 - 24x - 4 + 3x = 8x^2 - 21x - 4$$

Exercice 2

Développer et réduire les expressions suivantes

$$A = (x + 3)(y + 2) \quad B = (3 - 2x)(4 - x)$$

$$A = xy + 2x + 3y + 6 \quad B = 12 - 3x - 8x + 2x^2$$

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

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

$$C = -2x + 3 + 6x^2 - 9x$$

$$C = 6x^2 - 11x + 3$$

$$D = 2x(1 - x) - (x - 3)(3x + 2)$$

$$D = 2x - 2x^2 - (3x^2 + 2x - 9x - 6)$$

$$D = 2x - 2x^2 - 3x^2 - 2x + 9x + 6$$

$$D = -5x^2 + 9x + 6$$

Exercice 3

Développer et réduire les expressions suivantes

$$A = 2(3 + x)(3 - x) \quad B = -3(2x + 1)(-2 + x)$$

$$A = 2(9 - 3x + 3x - x^2) \quad B = -3(-4x + 2x^2 - 2 + x)$$

$$A = 18 - 6x + 6x - 2x^2 \quad B = 12x - 6x^2 + 6 - 3x$$

$$A = -2x^2 + 18 \quad B = -6x^2 + 9x + 6$$

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

$$D = 10 - 4x - 15x + 6x^2 - 4(3x^2 + 6x - x - 2)$$

$$D = 10 - 4x - 15x + 6x^2 - 12x^2 - 24x + 4x + 8$$

$$D = -6x^2 - 39x + 18$$

Exercice 4

Développer et réduire les expressions suivantes

$$A = (x - 3)(x + 3) = x^2 - 3^2 = x^2 - 9$$

$$B = (4 - x)(x + 4) = (4 - x)(4 + x) = 4^2 - x^2 = 16 - x^2$$

$$C = 2(x + 3) + (2x + 3)(2x - 3)$$

$$C = 2x + 6 + ((2x)^2 - 3^2)$$

$$C = 2x + 6 + 4x^2 - 9$$

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

Exercice 5 (bilan)

Développer et réduire les expressions suivantes

$A = 2x(x - 3) + (4x - 3)(4x + 3)$ $A = 2x^2 - 6x + ((4x)^2 - 3^2)$ $A = 2x^2 - 6x + 16x^2 - 9$ $A = 18x^2 - 6x - 9$	$B = (x + 2)(-3x + 4) - 2(x + 4)(x - 4)$ $B = -3x^2 + 4x - 6x + 8 - 2(x^2 - 4^2)$ $B = -3x^2 + 4x - 6x + 8 - 2x^2 + 32$ $B = -5x^2 - 2x + 40$
$C = (x + 1)^2$ $C = (x + 1)(x + 1)$ $C = x^2 + x + x + 1$ $C = x^2 + 2x + 1$	$D = (2x + 3)^2 - (4 - x)(x + 4)$ $D = (2x + 3)(2x + 3) - (4^2 - x^2)$ $D = 4x^2 + 6x + 6x + 9 - 16 + x^2$ $D = 5x^2 + 12x - 7$
$E = 2(3 - x)^2 + (2 - 3x)2x$ $E = 2(3 - x)(3 - x) + 4x - 6x^2$ $E = 2(9 - 3x - 3x + x^2) + 4x - 6x^2$ $E = 18 - 12x + 2x^2 + 4x - 6x^2$ $E = -4x^2 - 8x + 18$	

Exercice 6

Résoudre les équations suivantes

$a) 3x = 9$ $\Leftrightarrow x = 3$ $S = \{3\}$	$b) 2x + 3 = 4$ $\Leftrightarrow 2x$ $= 4 - 3$ $\Leftrightarrow 2x = 1$ $\Leftrightarrow x = \frac{1}{2}$ $S = \left\{\frac{1}{2}\right\}$	$c) -2x + 4 = 3$ $\Leftrightarrow -2x = 3 - 4$ $\Leftrightarrow -2x = -1$ $\Leftrightarrow x = \frac{-1}{-2}$ $\Leftrightarrow x = \frac{1}{2}$ $S = \left\{\frac{1}{2}\right\}$	$d) -2x + 2 = 3x - 6$ $\Leftrightarrow -2x - 3x = -6 - 2$ $\Leftrightarrow -5x = -8$ $\Leftrightarrow x = \frac{-8}{-5}$ $\Leftrightarrow x = \frac{8}{5}$ $S = \left\{\frac{8}{5}\right\}$
---	---	---	--

e) $\frac{1}{2}x + \frac{1}{3} = \frac{5}{4}$ $\Leftrightarrow \frac{1}{2}x = \frac{5}{4} - \frac{1}{3}$ $\Leftrightarrow \frac{1}{2}x = \frac{5 \times 3}{4 \times 3} - \frac{1 \times 4}{3 \times 4}$ $\Leftrightarrow \frac{1}{2}x = \frac{15}{12} - \frac{4}{12}$ $\Leftrightarrow \frac{1}{2}x = \frac{11}{12}$ $\Leftrightarrow \frac{\frac{1}{2}x}{\frac{1}{2}} = \frac{\frac{11}{12}}{\frac{1}{2}}$ $\Leftrightarrow x = \frac{11}{12} \times \frac{2}{1}$ $\Leftrightarrow x = \frac{11}{6}$ $S = \left\{ \frac{11}{6} \right\}$	f) $3(x - 5) + (8x + 2) = 7x - 9$ $\Leftrightarrow 3x - 15 + 8x + 2 = 7x - 9$ $\Leftrightarrow 11x - 13 = 7x - 9$ $\Leftrightarrow 11x - 7x = -9 + 13$ $\Leftrightarrow 4x = 4$ $\Leftrightarrow \frac{4x}{4} = \frac{4}{4}$ $\Leftrightarrow x = 1$ $S = \{1\}$
g) $2(x - 3) - (x + 5) = 4$ $\Leftrightarrow 2x - 6 - x - 5 = 4$ $\Leftrightarrow x - 11 = 4$ $\Leftrightarrow x = 4 + 11$ $\Leftrightarrow x = 15$ $S = \{15\}$	h) $3(x + 1) - 2(3x + 3) = 0$ $\Leftrightarrow 3x + 3 - 6x - 6 = 0$ $\Leftrightarrow -3x - 3 = 0$ $\Leftrightarrow -3x = 3$ $\Leftrightarrow \frac{-3x}{-3} = \frac{3}{-3}$ $\Leftrightarrow x = -1$ $S = \{-1\}$