

# Training exercises sheet :

## Expand an algebraic expression

### Exercise 1

Expand and reduce :

$$A = 7(12 - 2x)$$

$$B = (5 - 2x) \times 5$$

$$C = -6x(7 - 12x)$$

$$D = -5(-12 - 8x)$$

$$E = -11x(-2x + 8)$$

$$F = 12x(-x + 11)$$

### Exercise 2

Expand and reduce :

$$A = (12 + x)(-5x + 9)$$

$$B = (-3x + 5)(-11 + 8x)$$

$$C = (-12x - 2)(7 + 12x)$$

$$D = (-2 + 2x)(5x + 10)$$

$$E = (5 - 7x)(-9x + 9)$$

# Examples of answers

## Exercise 1

$$A = 7(12 - 2x)$$

$$A = 7 \times 12 + 7 \times (-2x)$$

$$A = 84 - 14x$$

$$B = (5 - 2x) \times 5$$

$$B = 5 \times 5 - 2x \times 5$$

$$B = 25 - 10x$$

$$C = -6x(7 - 12x)$$

$$C = -6x \times 7 - 6x \times (-12x)$$

$$C = -42x + 72x^2$$

$$D = -5(-12 - 8x)$$

$$D = -5 \times (-12) - 5 \times (-8x)$$

$$D = 60 + 40x$$

$$E = -11x(-2x + 8)$$

$$E = -11x \times (-2x) - 11x \times 8$$

$$E = 22x^2 - 88x$$

$$F = 12x(-x + 11)$$

$$F = 12x \times (-x) + 12x \times 11$$

$$F = -12x^2 + 132x$$

## Exercise 2

$$A = (12 + x)(-5x + 9)$$

$$A = 12 \times (-5x) + 12 \times 9 + x \times (-5x) + x \times 9$$

$$A = -60x + 108 - 5x^2 + 9x$$

$$A = (-60 + 9)x + 108 - 5x^2$$

$$A = -51x + 108 - 5x^2$$

$$B = (-3x + 5)(-11 + 8x)$$

$$B = -3x \times (-11) - 3x \times 8x + 5 \times (-11) + 5 \times 8x$$

$$B = 33x - 24x^2 - 55 + 40x$$

$$B = (33 + 40)x - 24x^2 - 55$$

$$B = 73x - 24x^2 - 55$$

$$C = (-12x - 2)(7 + 12x)$$

$$C = -12x \times 7 - 12x \times 12x - 2 \times 7 - 2 \times 12x$$

$$C = -84x - 144x^2 - 14 - 24x$$

$$C = (-84 - 24)x - 144x^2 - 14$$

$$C = -108x - 144x^2 - 14$$

$$D = (-2 + 2x)(5x + 10)$$

$$D = -2 \times 5x - 2 \times 10 + 2x \times 5x + 2x \times 10$$

$$D = -10x - 20 + 10x^2 + 20x$$

$$D = (-10 + 20)x - 20 + 10x^2$$

$$D = 10x - 20 + 10x^2$$

$$E = (5 - 7x)(-9x + 9)$$

$$E = 5 \times (-9x) + 5 \times 9 - 7x \times (-9x) - 7x \times 9$$

$$E = -45x + 45 + 63x^2 - 63x$$

$$E = (-45 - 63)x + 45 + 63x^2$$

$$E = -108x + 45 + 63x^2$$