

# Corrections Automatismes

## Priorités de calcul

### Corrigé Exercice 1

|           |           |           |           |           |
|-----------|-----------|-----------|-----------|-----------|
| $A = -3$  | $B = -8$  | $C = +9$  | $D = -14$ | $E = +4$  |
| $F = -7$  | $G = -27$ | $H = +18$ | $I = +16$ | $J = 0$   |
| $K = +25$ | $L = +42$ | $M = -5$  | $N = -1$  | $P = -49$ |
| $Q = +42$ | $R = -40$ | $S = -8$  |           |           |

### Corrigé Exercice 2

|              |              |               |               |               |                 |
|--------------|--------------|---------------|---------------|---------------|-----------------|
| $A = +3$     | $B = -4$     | $C = -13$     | $D = +4$      | $E = 2$       | $F = -2$        |
| $G = -1 + 9$ | $H = 7 - 11$ | $I = -5 - 10$ | $J = -21 + 2$ | $K = -12 - 1$ | $L = 7 - 3 + 7$ |
| $G = +8$     | $H = -4$     | $I = -15$     | $J = -19$     | $K = -13$     | $L = 11$        |

### Corrigé Exercice 3

|                                                     |                                                            |                               |                                                 |
|-----------------------------------------------------|------------------------------------------------------------|-------------------------------|-------------------------------------------------|
| $A_1 = 5 - (2 + 7)$                                 | $A_2 = 4 \times (5 - 2)$                                   | $A_3 = 4 - 5 \times 6$        | $A_4 = 8 - (11 - 14)$                           |
| $A_1 = 5 - 9$                                       | $A_2 = 4 \times 3$                                         | $A_3 = 4 - 30$                | $A_4 = 8 - (-3)$                                |
| $A_1 = -4$                                          | $A_2 = 12$                                                 | $A_3 = -26$                   | $A_4 = 8 + 3 = 11$                              |
| $A_5 = 5 - 16 \times 2 - 2$                         | $A_6 = 5 \times 7 - 4 \times 9$                            | $A_7 = (12 - 4) \times (-3)$  | $A_8 = 5 \times (9 - 3 \times (-4))$            |
| $A_5 = 5 - 32 - 2$                                  | $A_6 = 35 - 4 \times 9$                                    | $A_7 = 8 \times (-3)$         | $A_8 = 5 \times (9 + 12)$                       |
| $A_5 = 5 - 34$ (ou $-27 - 2$ )                      | $A_6 = 35 - 36$                                            | $A_7 = -24$                   | $A_8 = 5 \times 21$                             |
| $A_5 = -29$                                         | $A_6 = -1$                                                 |                               | $A_8 = 105$                                     |
| $A_9 = \frac{10 - 4}{3 \times 2} = \frac{6}{6} = 1$ | $A_{10} = 5 \times \frac{7 - 1}{3} = 5 \times \frac{6}{3}$ | $A_{11} = (4 - 16) \div (-3)$ | $A_{12} = \frac{3 - 2 \times 6}{(-3)^2}$        |
|                                                     | $A_{10} = 5 \times 2 = 10$                                 | $A_{11} = (-12) \div (-3)$    | $A_{12} = \frac{3 - 12}{9} = \frac{-9}{9} = -1$ |
|                                                     |                                                            | $A_{11} = 4$                  |                                                 |
| $B_1 = 2 \times 6^2$                                | $B_2 = (2 \times 6)^2$                                     | $B_3 = 4 \times (-3)^2$       | $B_4 = (4 \times (-3))^2$                       |
| $B_1 = 2 \times 36$                                 | $B_2 = (12)^2$                                             | $B_3 = 4 \times 9$            | $B_4 = (-12)^2$                                 |
| $B_1 = 72$                                          | $B_2 = 144$                                                | $B_3 = 36$                    | $B_4 = +144$                                    |
| $B_5 = 5 + 2^2$                                     | $B_6 = (5 + 2)^2$                                          | $B_7 = (-2 + 7)^2$            | $B_9 = 2 \times (-5)^2 - 15$                    |
| $B_5 = 5 + 4$                                       | $B_6 = (7)^2$                                              | $B_7 = (5)^2$                 | $B_9 = 2 \times 25 - 15$                        |
| $B_5 = 9$                                           | $B_6 = 49$                                                 | $B_7 = 25$                    | $B_9 = 50 - 15 = 35$                            |

### Corrigé Exercice 4

|            |             |             |            |            |            |
|------------|-------------|-------------|------------|------------|------------|
| $C_1 = -4$ | $C_2 = 2$   | $C_3 = 100$ | $C_4 = 31$ | $C_5 = 24$ | $C_6 = -2$ |
| $B_1 = -6$ | $B_2 = -47$ | $B_3 = 16$  | $B_4 = 40$ | $B_5 = 13$ | $B_6 = 0$  |

## Corrigé Exercice 5

| 1)       | $3 + x$                                  | $x - 10$                           | $-5 + x$                                     | $-4 - x$                                     | $6 - x$                                  | $3 - x - 1$                                          | $-7 - x + 4$                                            |
|----------|------------------------------------------|------------------------------------|----------------------------------------------|----------------------------------------------|------------------------------------------|------------------------------------------------------|---------------------------------------------------------|
| $x = 4$  | $3 + 4 = 7$                              | $4 - 10 = -6$                      | $-5 + 4 = -1$                                | $-4 - 4 = -8$                                | $6 - 4 = 2$                              | $3 - 4 - 1 = -2$                                     | $-7 - 4 + 4 = -7$                                       |
| $x = -3$ | $3 + x =$<br>$3 + (-3) =$<br>$3 - 3 = 0$ | $x - 10 =$<br>$-3 - 10 =$<br>$-13$ | $-5 + x =$<br>$-5 + (-3) =$<br>$-5 - 3 = -8$ | $-4 - x =$<br>$-4 - (-3) =$<br>$-4 + 3 = -1$ | $6 - x =$<br>$6 - (-3) =$<br>$6 + 3 = 9$ | $3 - x - 1 =$<br>$3 - (-3) - 1 =$<br>$3 + 3 - 1 = 5$ | $-7 - x + 4 =$<br>$-7 - (-3) + 4 =$<br>$-7 + 3 + 4 = 0$ |

| 2)       | $5 \times x$          | $-2 \times x$         | $6x$                                     | $-3x$                                        | $x \div (-2)$       | $\frac{x}{4}$       | $x^2$          |
|----------|-----------------------|-----------------------|------------------------------------------|----------------------------------------------|---------------------|---------------------|----------------|
| $x = 8$  | $5 \times 8 = 40$     | $-2 \times 8 = -16$   | $6x = 6 \times x =$<br>$6 \times 8 = 48$ | $-3x = -3 \times x$<br>$= -3 \times 8 = -24$ | $8 \div (-2) = -4$  | $\frac{8}{4} = 2$   | $8^2 = 64$     |
| $x = -4$ | $5 \times (-4) = -20$ | $-2 \times (-4) = +8$ | $6 \times (-4) = -24$                    | $-3 \times (-4) = +12$                       | $-4 \div (-2) = +2$ | $\frac{-4}{4} = -1$ | $(-4)^2 = +16$ |

## Corrigé Exercice 6

|                                                                                                                          |                                                                                                                 |                                                                                                                                                         |                                                                                                                      |
|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| a) $A = 3x + 2$ et $x = 5$<br>$A = 3 \times 5 + 2$<br>$A = 15 + 2 = 17$                                                  | b) $B = 2x - 5$ et $x = -3$<br>$B = 2 \times (-3) - 5$<br>$B = -6 - 5 = -11$                                    | c) $C = 4 - 6x$ et $x = 2$<br>$C = 4 - 6 \times 2$<br>$C = 4 - 12 = -8$                                                                                 | d) $D = -7 + 2x$ et $x = -6$<br>$D = -7 + 2 \times (-6)$<br>$D = -7 - 12 = -19$                                      |
| e) $E = 3 \times (2 - x)$<br>et $x = -5$<br>$E = 3 \times (2 - (-5))$<br>$E = 3 \times (2 + 5)$<br>$E = 3 \times 7 = 21$ | f) $F = (m + 4)(m - 10)$<br>et $m = -1$<br>$F = (-1 + 4) \times (-1 - 10)$<br>$F = 3 \times (-11)$<br>$F = -33$ | g) $G = (2x - 1)(5 - 3x)$<br>et $x = 4$<br>$G = (2 \times 4 - 1) \times (5 - 3 \times 4)$<br>$G = (8 - 1) \times (5 - 12)$<br>$G = 7 \times (-7) = -49$ | h) $H = -1 - (2 - 3u)$<br>Et $u = -3$<br>$H = -1 - (2 - 3 \times (-3))$<br>$H = -1 - (2 + 9)$<br>$H = -1 - 11 = -12$ |

## Corrigé Exercice 7

|                                                                                                                         |                                                                                                            |                                                                                                                                                                             |                                                                                                                                                                  |
|-------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| a) $I = x^2$ et $x = -3$<br>$I = (-3)^2$<br>$I = +9$                                                                    | b) $J = 3x^2$ et $x = 5$<br>$J = 3 \times 5^2$<br>$J = 3 \times 25$<br>$J = 75$                            | c) $K = a^2 - 1$ et $a = -1$<br>$K = (-1)^2 - 1$<br>$K = 1 - 1$<br>$K = 0$                                                                                                  | d) $L = (x - 5)^3$ et $x = 2$<br>$L = (2 - 5)^3$<br>$L = (-3)^3$<br>$L = -27$                                                                                    |
| e) $M = 3(x^2 - 2)$ et $x = 1$<br>$M = 3 \times (1^2 - 2)$<br>$M = 3 \times (1 - 2)$<br>$M = 3 \times (-1)$<br>$M = -3$ | f) $N = (3 - 4x)^2$ et $x = 2$<br>$N = (3 - 4 \times 2)^2$<br>$N = (3 - 8)^2$<br>$N = (-5)^2$<br>$N = +25$ | g) $P = 6 - p^2 + 4p$<br>et $p = -6$<br>$P = 6 - (-6)^2 + 4 \times (-6)$<br>$P = 6 - 36 + 4 \times (-6)$<br>$P = 6 - 36 - 24$<br>$P = 6 - 60$ (ou $-30 - 24$ )<br>$P = -54$ | h) $Q = x^3 - (6 + 3x)^2$<br>et $x = -4$<br>$Q = (-4)^3 - (6 + 3 \times (-4))^2$<br>$Q = -64 - (6 - 12)^2$<br>$Q = -64 - (-6)^2$<br>$Q = -64 - 36$<br>$Q = -100$ |

## Corrigé Exercice 8

|                                                                                           |                                                                                                                            |                                                                                                              |                                                                                                                                                  |
|-------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| 1) pour $x = 5$ :<br>$A = 2x - 7$<br>$A = 2 \times 5 - 7$<br>$A = 10 - 7 = \underline{3}$ | 2) a) pour $x = 4$ :<br>$B = 3x^2 - x$<br>$B = 3 \times 4^2 - 4$<br>$B = 3 \times 16 - 4$<br>$B = 48 - 4 = \underline{44}$ | b) pour $x = -1$ :<br>$B = 3x^2 - x$<br>$B = 3 \times (-1)^2 - (-1)$<br>$B = 3 \times 1 + 1 = \underline{4}$ | 3) quand $t$ vaut $-2$ :<br>$C = \frac{1 - t^2}{t^3}$<br>$C = \frac{1 - (-2)^2}{(-2)^3}$<br>$C = \frac{1 - 4}{-8} = \frac{-3}{-8} = \frac{3}{8}$ |
|-------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|