Exercice 1 :

Question 1 :

1. 232-1

Question 2 :

0010 1010=

Question 3 :

Aucun car le programme donnera au premier tour 3, au second tour 5, au troisième tour 7, au quatrième tour 9, au cinquième tour 11, au sixième tour 13, au septième tour 15, au huitième tout 17, au neuvième tour 19, au dixième tour 21 et la somme de tous les résultats donnera : 120.

Question 4 :

c) Les puissances de 10

Exercice 2 :

Exercice 3 :

1. 100 = 00100112+0000 00018=000101008

|  |  |  |
| --- | --- | --- |
| 100  -100  **0** | 2 |  |
| 50  -50  **0** | 2 | |  |
| 25  -24  **1** | | 2 |
| 12  -12  **0** | 2 |  | |
| 6  -6  **0** | 2 |  |
| 3  -2  **1** | 2 |
| **1** |

1. 75 = 11010012+000000018 = 011010108

|  |  |
| --- | --- |
| 75  -74  **1** | 2 |
| 37  -36  **1** | 2 |  |
| 18  -18  **0** | 2 |  |  |  |
| 9  -8  **1** | 2 |
| 4  -4  **0** | 2 |
| 2  -2  **0** | 2 |
| **1** |

1. -50 = 0100112+000000018=000101008

|  |  |  |
| --- | --- | --- |
| 50  -50  **0** | 2 |  |
| 25  -24  **1** | 2 |
| 12  -12  **0** | 2 |  | |
| 6  -6  **0** | 2 |  |
| 3  -2  **1** | 2 |
| **1** |

1. -80 = 00001012+000000018=000001108

|  |  |  |  |
| --- | --- | --- | --- |
| 80  -80  **0** | 2 |  |  |
| 40  -40  **0** | 2 |
| 20  -20  **0** | 2 |  | | |
| 10  -10  **0** | 2 |  | |
| 5  -4  **1** | 2 |  |
| 2  -2  **0** | 2 |
| **1** |

Exercice 4 :

1. 110010112=2+2+2+2+2=1+2+8+64+128=203
2. 110101002=2+2+2+2=4+16+64+128=212
3. -50=
4. -89=

Exercice 5 :

1. = (110100, 0000)2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 16  -16  **0** | 2 |  | |  | |
| 8  -8  **0** | 2 |  |
| 4  -4  **0** | 2 |
| 2  -2  **0** | 2 |
| **1** |

|  |  |
| --- | --- |
| 75  -74  **1** | 2 |
| 37  -36  **1** | 2 |  |
| 18  -18  **0** | 2 |  |  |  |
| 9  -8  **1** | 2 |
| 4  -4  **0** | 2 |
| 2  -2  **0** | 2 |
| **1** |

1. = (1010011,00001)2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 8  -16  **0** | 2 |  | |  | |
| 8  -8  **0** | 2 |  |
| 4  -4  **0** | 2 |
| 2  -2  **0** | 2 |
| **1** |

|  |  |  |
| --- | --- | --- |
| 101  -100  **1** | 2 |  |
| 50  -50  **0** | 2 | |  |
| 25  -24  **1** | | 2 |
| 12  -12  **0** | 2 |  | |
| 6  -6  **0** | 2 |  |
| 3  -2  **1** | 2 |
| **1** |

1. 14,5 = (0111,101)2

|  |  |  |  |
| --- | --- | --- | --- |
| 5  -4  **1** | 2 |  | |
| 2  -2  **0** | 2 |
| **1** |

|  |  |  |  |
| --- | --- | --- | --- |
| 14  -14  **0** | 2 |  | |
| 7  -6  **1** | 2 |  |
| 3  -2  **1** | 2 |
| **1** |
|

1. 30,5 = (01111,101)2

|  |  |  |  |
| --- | --- | --- | --- |
| 5  -4  **1** | 2 |  | |
| 2  -2  **0** | 2 |
| **1** |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 30  -30  **0** | 2 |  | |  |
| 15  -14  **1** | 2 |  |
| 7  -6  **1** | 2 |
| 3  -2  **1** | 2 |
| **1** |

1. = (1101,00001)2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 16  -16  **0** | 2 |  | |  | |
| 8  -8  **0** | 2 |  |
| 4  -4  **0** | 2 |
| 2  -2  **0** | 2 |
| **1** |

|  |  |  |  |
| --- | --- | --- | --- |
| 11  -10  **1** | 2 |  | |
| 5  -4  **1** | 2 |  |
| 2  -2  **0** | 2 |
| **1** |
|

1. = (1101,1111)2

|  |  |  |  |
| --- | --- | --- | --- |
| 15  -14  **1** | 2 |  | |
| 7  -6  **1** | 2 |  |
| 3  -2  **1** | 2 |
| **1** |
|

|  |  |  |  |
| --- | --- | --- | --- |
| 11  -10  **1** | 2 |  | |
| 5  -4  **1** | 2 |  |
| 2  -2  **0** | 2 |
| **1** |
|

1. +=

Bonus :

1. L’exécution de la variable ne peut pas s’arrêter si la variable x n’est jamais égale exactement à 0.0