**Solution**

**Task 2**

|  |  |  |
| --- | --- | --- |
| Decimal | Binary | Hexadecimal |
| **11342** | **10110001001110** | **2C4E** |

Decimal to Binary: Decimal to Hex:

11342 2 = 5671 R **0** 11342/**16** = 708.**875** 708 R **14** 14 = **E**

5671 2 = 2835 R **1** 708/16 = 44.26 44 R 4 4 = **16**

2835 2 = 1417 R **1**  44/16 = 2.75 2 R 12 12 = **C**

1417 2 = 708 R **1**  2/16 = 0.125 0 R 2 2 = **2**

708 2 = 354 R **0**

354 2= 177 R **0**

177 2= 88 R **1**

88 2= 44 R **0**

44 2 = 22 R **0**

22 2= 11 R **0**

11 2= 5 R **1**

5 2= 2 R **1**

2 2= 1 R **0**

1 2= 0 R **1**

**b)**

99999 2 R **1 Addition:**

49999 2 R 1 1 1 0 0 10 10 1 1 0 1 0 10 11 11 11 1 1

24999 2 R 1 + 1 0 1 1 0 0 0 1 0 0 1 1 1 0

12499 2 R **1 1 1 0 1 1 0 0 1 0 1 1 1 0 1 1 0 1**

6249 2 R **1**

3124 2 R **0**

1562 2 R **0 Subtraction:**

781 2 R **1** 1 1 0 0 0 0 1 1 0 1 0 0 1 1 1 1 1

390 2 R **0 -** 1 0 1 1 0 0 0 1 0 0 1 1 1 0

195 2 R **1** **1 0 1 0 1 1 0 1 0 0 1 0 1 0 0 0 1**

97 2 R **1**

48 2 R **0**

24 2 R **0**

12 2 R **0**

6 2 R **0**

3 2 R **1**

1 2 R **1**

**C)**

We use hex number system in order to reduce large strings of binary numbers by grouped them into 4 digits to be more understandable. Moreover , it is commonly used to represent combinations of colors for programming languages (e.g JavaScript , Python , CSS)