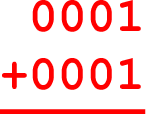
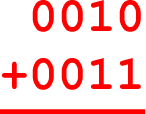
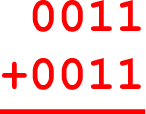
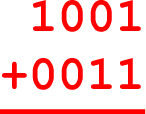
### 1. Adding to Your Knowledge…

a) Perform the following additions on two nibbles using binary (Base 2) numbers…

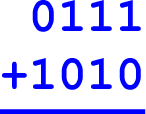
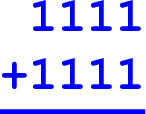
*i*) *ii*)

*iii*) *iv*)

*v*) *vi*)

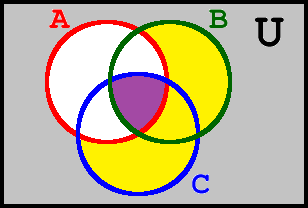
b) Confirm you answers above by converting all the numbers to decimal (Base 10).

c) Did any of the previous additions **overflow** the nibble-size (4-bit) capacity allotted for the sum?

### 2. Logically Speaking…

a) Venn diagrams (named after *John Venn, 1834-1923*) developed a graphic method for demonstrating logical relationships. These diagrams are very useful for explaining how computers work, as you will eventually see. In the meantime, let’s practice**.**

|  |  |
| --- | --- |
| *i*) The rectangle **U** stands for the **Universal** set of ALL RSGC students. *Write your name in rectangle if you are a member of this universe*. *Who, in the room, does not write their name in the rectangle?* | *ii*) The red circle, **A**, is the **set** of all students in Grade 5. *Why is this set* ***completely*** *contained with the rectangle*? *Write your name within the rectangle at a location that reflects your place within our universe.* |
| *iii*) The **set** **B** represents students that like ***Brussels sprouts***. *Write your name within the rectangle that best reflects your place within our universe.* | *iv*) The **set** **C** represents students that play **Chess**, regularly. *Write your name within the rectangle best reflects your place within our universe.* |

b) Using words like **and**, **or**, and **not**, explain who would write their names in the coloured regions listed below**.**

*i*) yellow

*ii*) purple

*iii*) gray