# Unit 2.4 Computation logic

1. What do computers use Binary?

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1. What is the name of the electrical components that are contained in the CPU, consisting in one of two states (on/off)?

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1. Draw a diagram to represent the following expressions:
   1. **P**=**A** AND **B**

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* 1. **P**=**A** OR **B**

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* 1. **P**=(**A** AND **B)** OR **C**

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* 1. **P**=**(A** AND **B)** AND NOT **C**

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1. Complete the Truth Tables for the following expressions:
   1. **Q**=**(**NOT **A)** AND **B**

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| **A** | **B** | **NOT A** | **Q** |
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* 1. **Q**=(NOT **A**) OR **B**

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| **A** | **B** | **NOT A** | **Q** |
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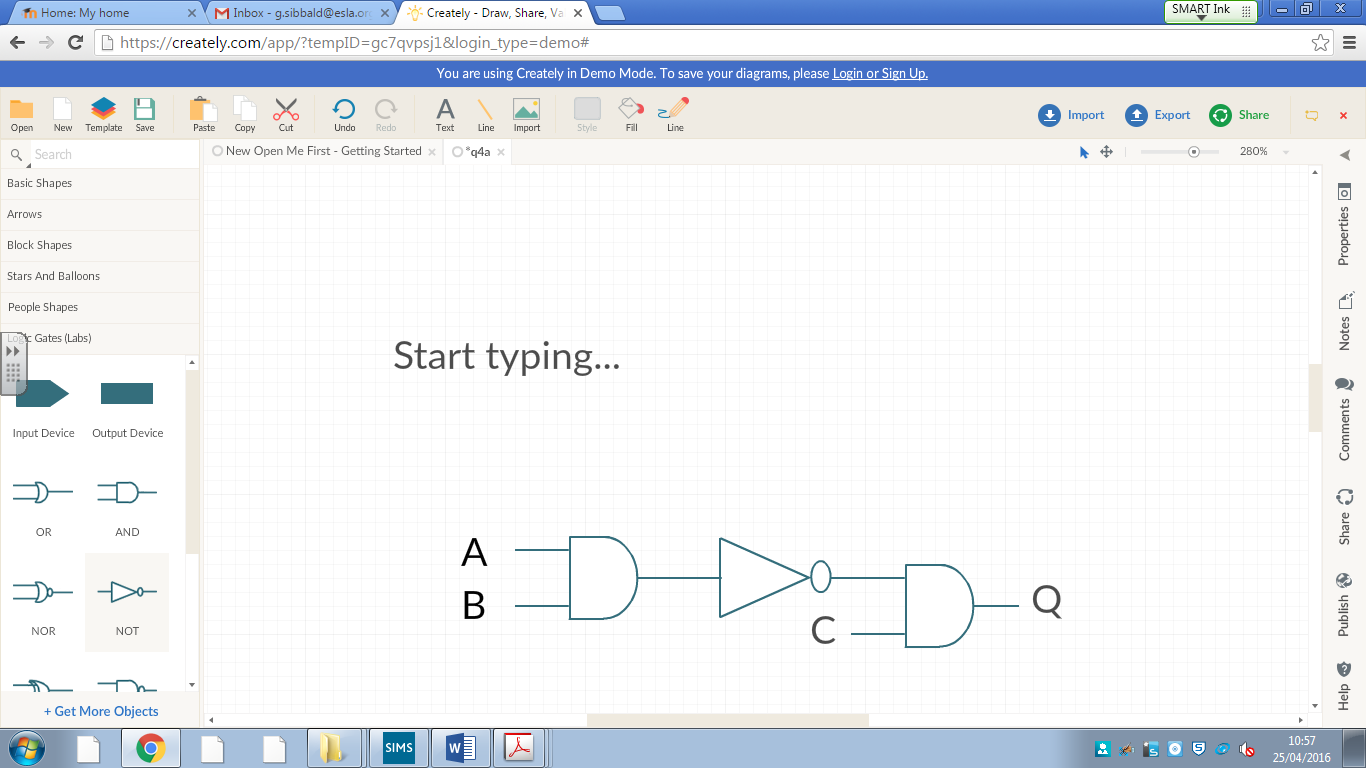
* 1. **Q**=(**A** AND **B**) OR **C**

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| **A** | **B** | **C** | **A AND B** | **Q** |
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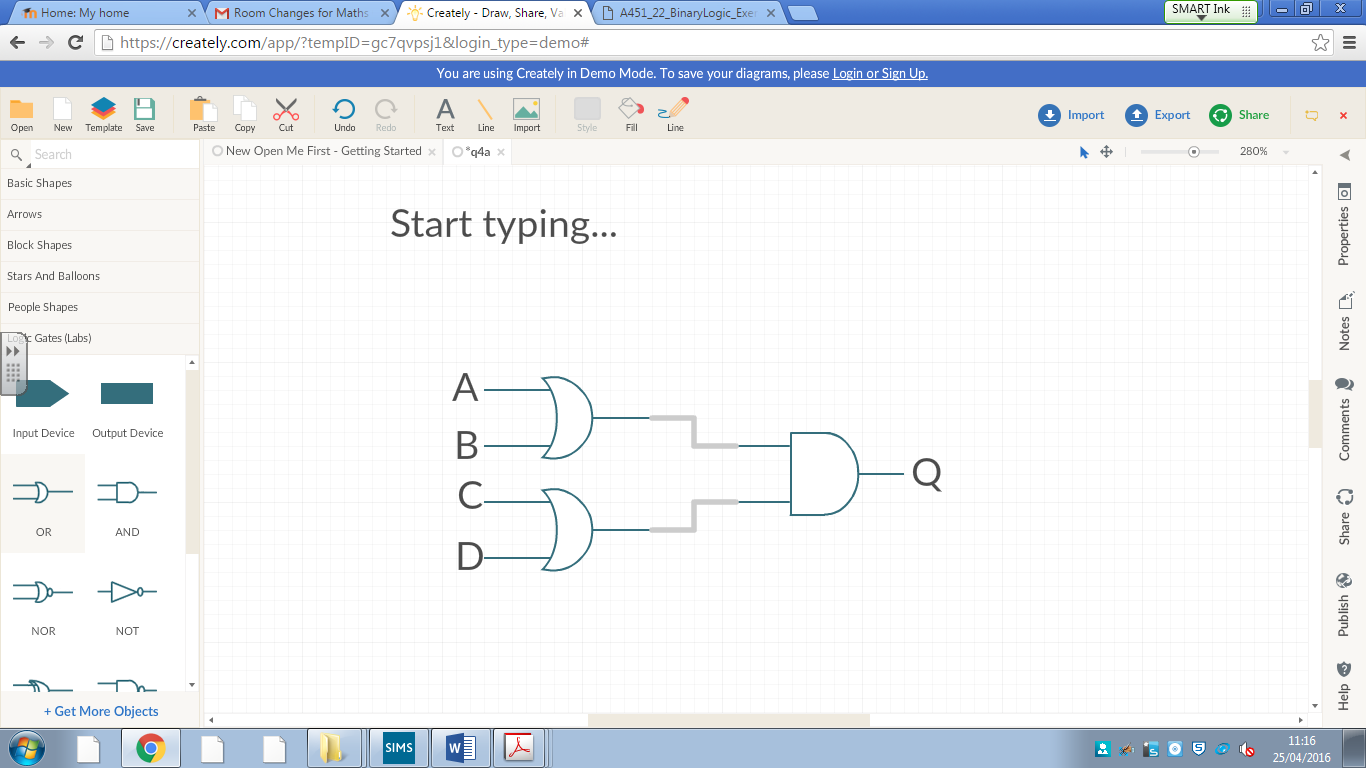
* 1. **Q**=**AB** OR **CD**

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| **A** | **B** | **C** | **D** | **AB** | **CD** | **Q** |
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1. Write out the Boolean expressions to represent each of the following circuits:



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1. Evaluate the following arithmetic expressions where **a=3, b=4, c=5**. Show your working.
   1. a^b

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* 1. (c-a)^b

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* 1. 8\*(a+c)/b

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* 1. (a+b)\*(b-c)/(c-a)

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* 1. (b+c)/a\*b

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1. Write an algorithm that will input two numbers (X and Y). Using MOD and DIV output the whole number part and the remainder for dividing X by Y.

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1. What is the output of Z for the following algorithm, when the following numbers are input. **A=27, B=15, C=52**.
   1. Z=A MOD 8

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* 1. Z=C DIV B

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* 1. Z=(A MOD 13)+C

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* 1. Z=(88 MOD B) DIV (A MOD 5)

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