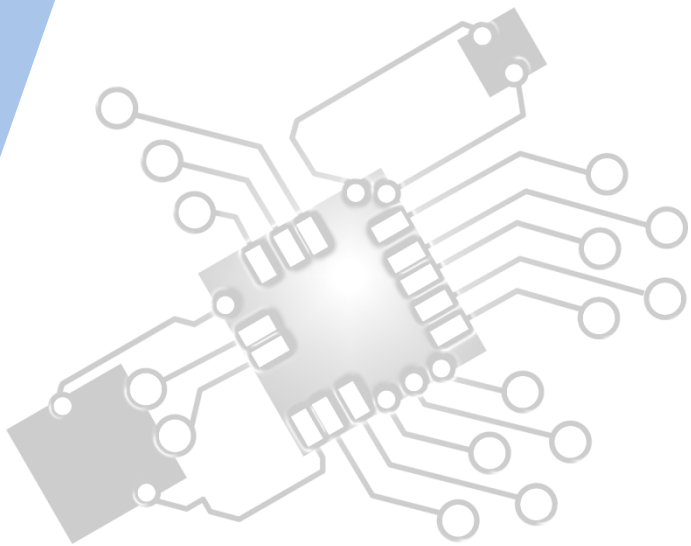
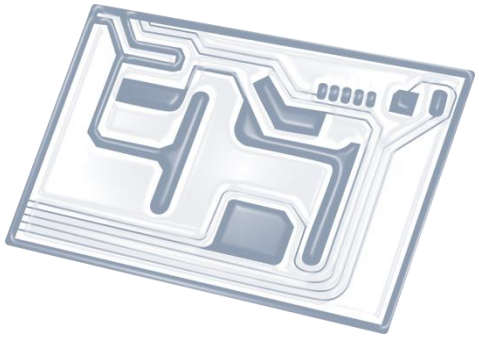
# Computer Organisation

## IB Computer Science



*Content developed by*
***Dartford Grammar School***
*Computer Science Department*

# HL Topics 1-7, D1-4



1: System design

2: Computer Organisation

3: Networks

4: Computational thinking


5: Abstract data structures

6: Resource management

7: Control

D: OOP

# HL & SL 2 Overview

## Computer architecture

2.1.1 Outline the architecture of the central processing unit (CPU) and the functions of the arithmetic logic unit (ALU) and the control unit (CU) and the registers within the CPU

2.1.2 Describe primary memory. 2 Distinguish between random access memory (RAM) and read-only memory (ROM), and their use in primary memory

2.1.3 Explain the use of cache memory

2.1.4 Explain the machine instruction cycle

## Secondary memory

2.1.5 Identify the need for persistent storage

Operating systems and application systems

2.1.6 Describe the main functions of an operating system

2.1.7 Outline the use of a range of application software

2.1.8 Identify common features of applications

## Binary representation

2.1.9 Define the terms: bit, byte, binary, denary/decimal, hexadecimal

2.1.10 Outline the way in which data is represented in the computer

## Simple logic gates

2.1.11 Define the Boolean operators: AND, OR, NOT, NAND, NOR and XOR

2.1.12 Construct truth tables using the above operators

2.1.13 Construct a logic diagram using AND, OR, NOT, NAND, NOR and XOR gates

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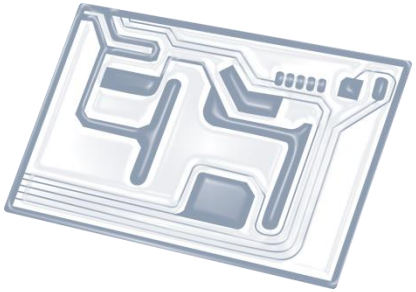
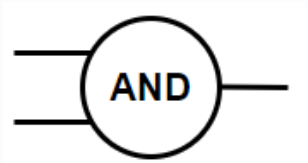
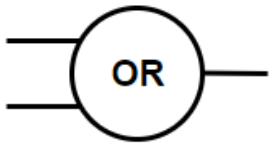
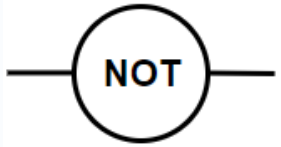
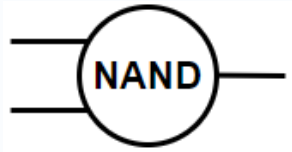
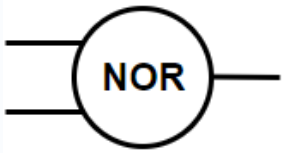
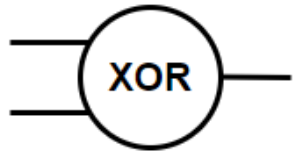


# Topic 2.1.13

**Construct** a logic diagram using **AND**, **OR**, **NOT**, **NAND**, **NOR** & **XOR**

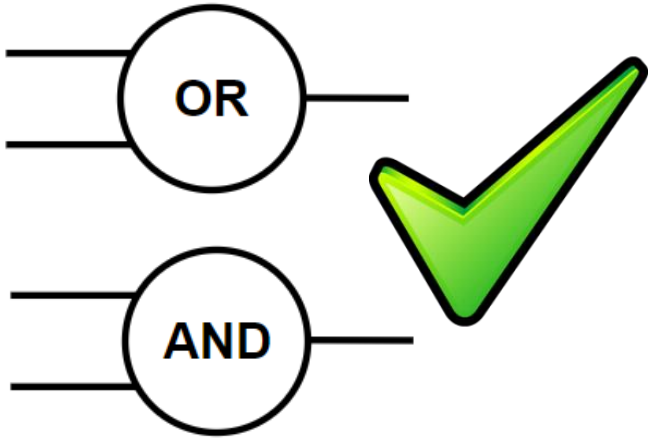
# You could be asked to sketch a diagram using these symbols

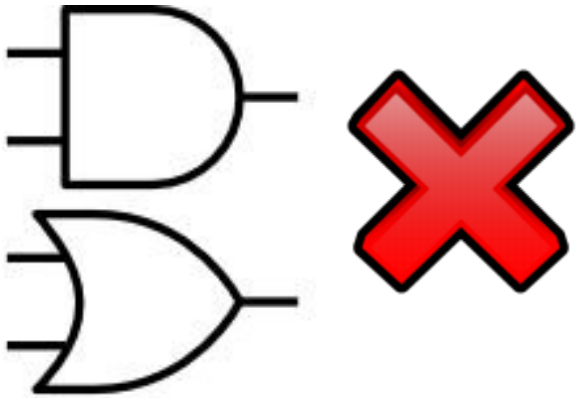
| AND | OR | NOT |
| --- | --- | --- |
|   |   |   |
| **NAND** | **NOR** | **XOR** |
|   |   |   |

# *Exam note!*

The IB uses their **own symbols** for logic gates, not the British Standard ones you'll find on the web.

**All exams & mark schemes** will only ever contain the ones highlighted in the official pseudo code guidance booklet

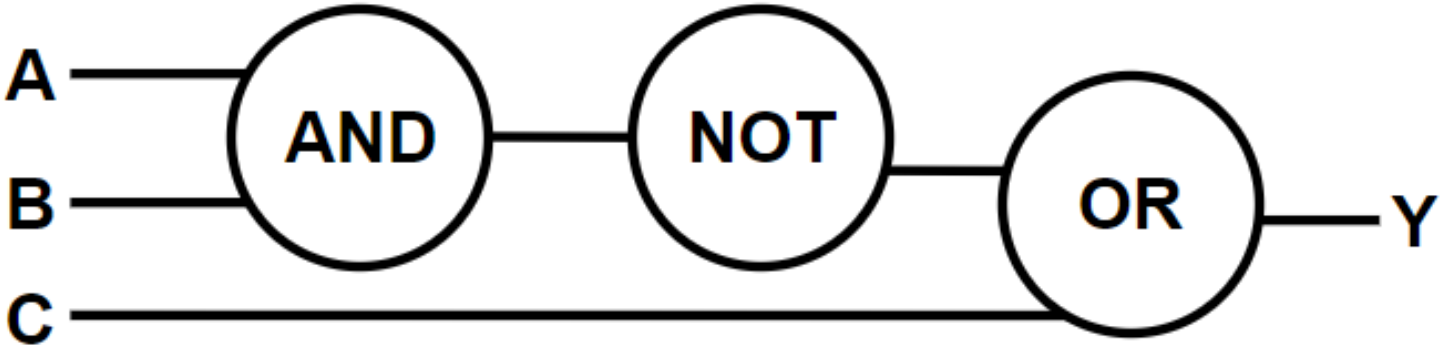


# Past exam question

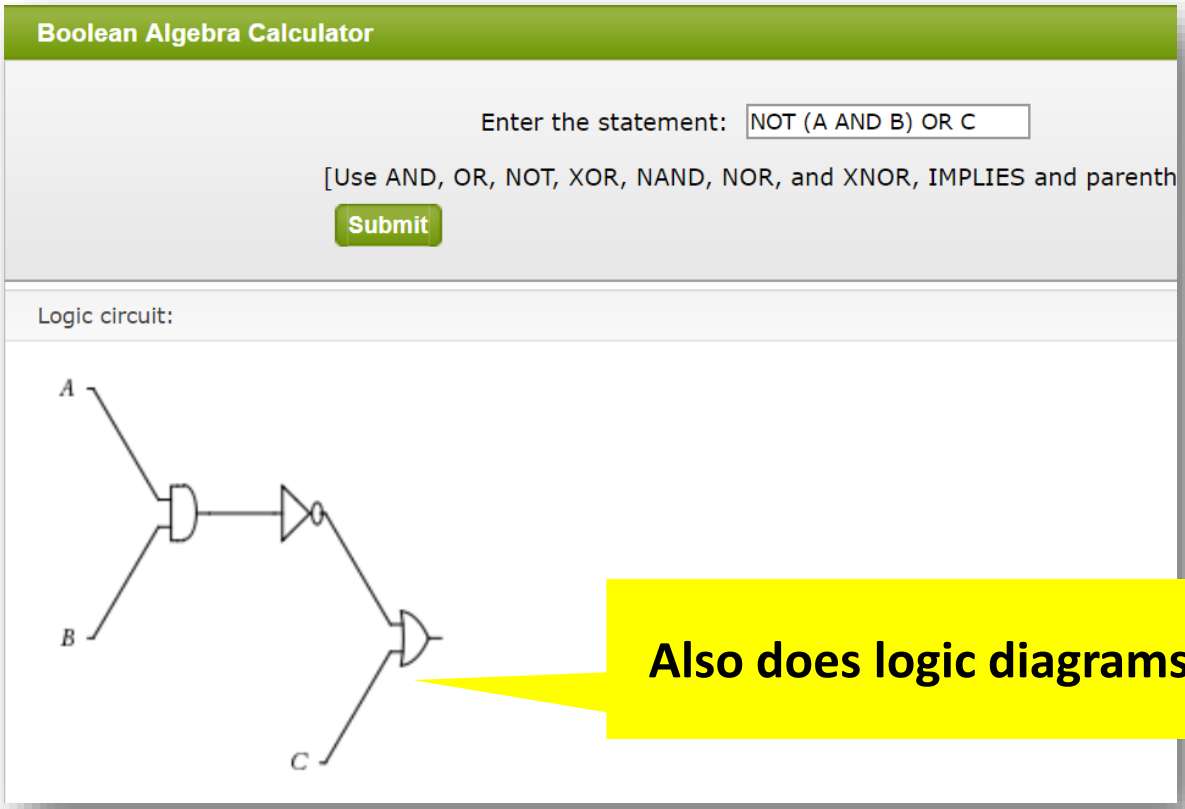
Turn the following logic statement into a logic diagram:

**Y = NOT (A AND B) OR C**



# Useful tool: Wolfram Alpha

Wolfram Alpha Boolean Algebra Calculator




**Also does logic diagrams!**