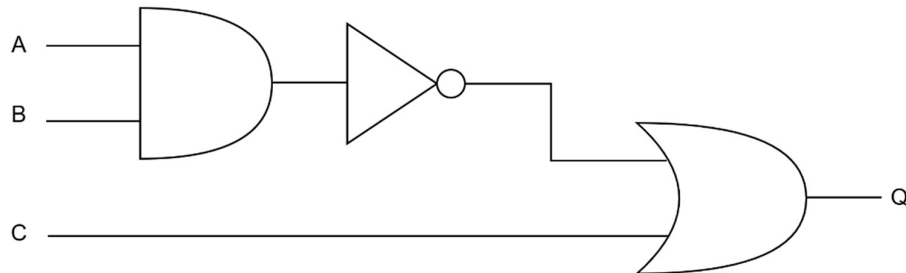


Although not presented in recent GCSE exam papers, logic notation is a quicker way of writing logic equations. However, it is referenced in A-level logic theory, so it is worth knowing.

Gate	Notation
AN	$\wedge$
OR	$\vee$
NO	$\neg$

The Logic diagram below can be expressed as $Q = \neg(A \wedge B) \vee C$



1. Create a truth table for the logic gate above.

A	B	C	$\neg(A \wedge B)$	Q

2. AS mentioned above, the above logic diagram can be expressed as $Q = \neg(A \wedge B) \vee C$
Write the logic equation for the logic gate above using gates and not notation.

An 11 year old student goes to the cinema with his parent. The film is rated as a 12A which means that the student can only watch the film if he is 12 or over or if he is attending with a parent.

A represents whether the student is over 11 years old and B represents whether the student is attending the film with a parent.

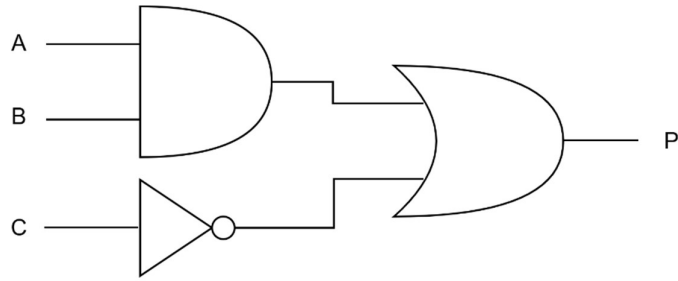
3. Draw the logic diagram for such a problem.

4. Create the truth table for the logic gate above. (use as many columns and rows as required)

5. Write the logic equation for the logic gate above

6. Write the logic equation for the logic gate above using logic notation





7. Complete the following truth table.

A	B	C	P

8. Write the logic equation for the logic gate above

9. Write the logic equation for the logic gate above using logic notation



10. Automatic Sprinkler System: An automatic sprinkler system turns on (Q) only when the ground is dry (A) and either the soil moisture sensor detects low moisture (B) or a timer activates (C). This can be represented with the logic equation:
Draw the logic diagram for the following logic equation



DELETE $Q = A \text{ AND } (B \text{ OR } C)$

11. Complete the truth table for the above logic diagram above (use the extra columns if required)

A	B	C			Q

12. Write the logic equation for the logic gate above

