

OR & AND Gates

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Outline

➤ OR Gate

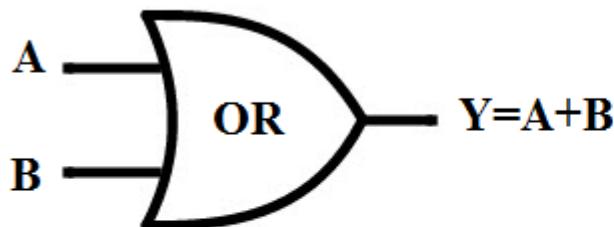
- Symbol and Truth Table
- Multi Input OR Gate
- OR Gate IC

➤ AND Gate

- Symbol and Truth Table
- Multi Input AND Gate
- AND Gate IC

OR Gate

Symbol



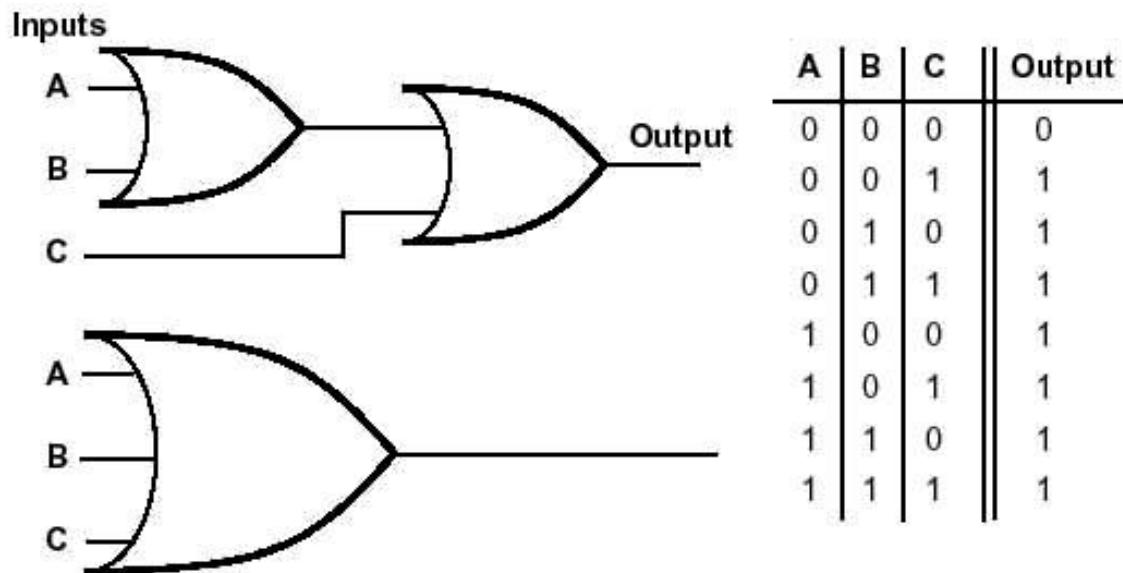
Truth Table

| Inputs | | Output |
|--------|---|---------|
| A | B | $Y=A+B$ |
| 0 | 0 | 0 |
| 0 | 1 | 1 |
| 1 | 0 | 1 |
| 1 | 1 | 1 |

- This is a two input OR gate.
- A and B are inputs and Y is output.
- Output will be high (1) when either one of the input is high or both of the inputs are high.

Multi Input OR Gate

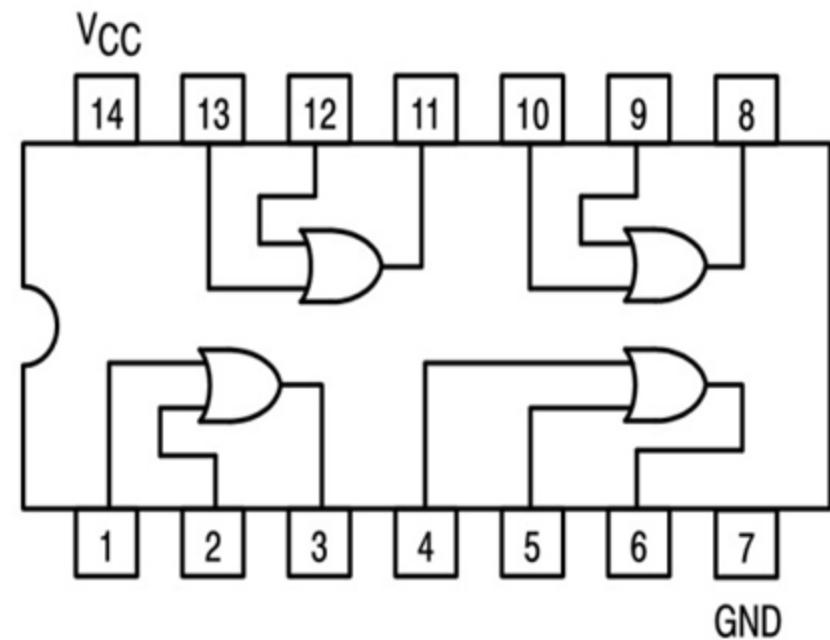
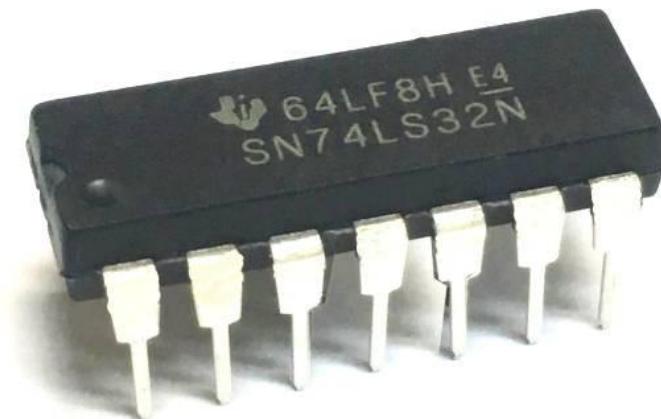
- OR gate with more than two inputs is multi input OR gate.
- Multi input OR gate can be made by joining OR gates with less inputs as shown below:



3 Input OR Gate

Truth Table

OR Gate IC and PIN Diagram



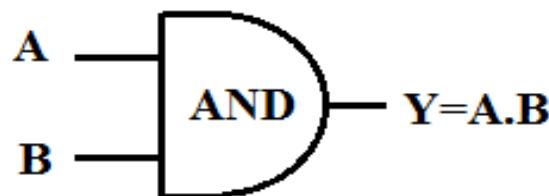
IC 7432 OR Gate IC

7432 IC PIN Diagram

- IC 7432 is a two input OR gate IC which contains four OR gate as shown in PIN diagram. To activate the IC +Vcc is provided at PIN 14 and ground at PIN 7.

AND Gate

Symbol



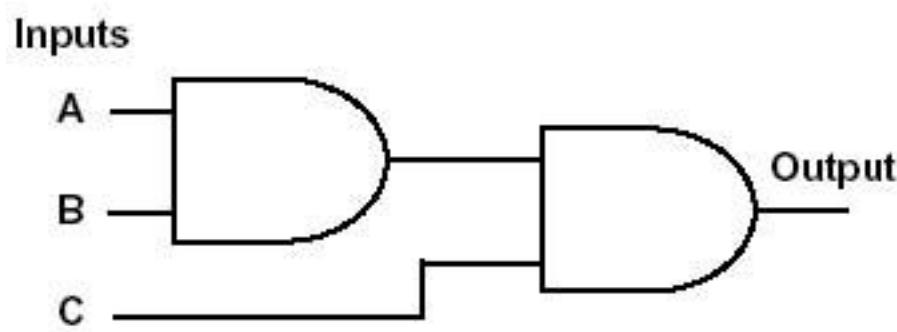
Truth Table

| Inputs | | Output |
|--------|---|---------------|
| A | B | $Y=A \cdot B$ |
| 0 | 0 | 0 |
| 0 | 1 | 0 |
| 1 | 0 | 0 |
| 1 | 1 | 1 |

- This is a two input AND gate.
- A and B are inputs and Y is output.
- Output will be high (1) only and only if all the inputs are high.

Multi Input AND Gate

- Multi input AND gate have more than two inputs and can be made by joining AND gates with less inputs as shown below:



| A | B | C | Output |
|---|---|---|--------|
| 0 | 0 | 0 | 0 |
| 0 | 0 | 1 | 0 |
| 0 | 1 | 0 | 0 |
| 0 | 1 | 1 | 0 |
| 1 | 0 | 0 | 0 |
| 1 | 0 | 1 | 0 |
| 1 | 1 | 0 | 0 |
| 1 | 1 | 1 | 1 |

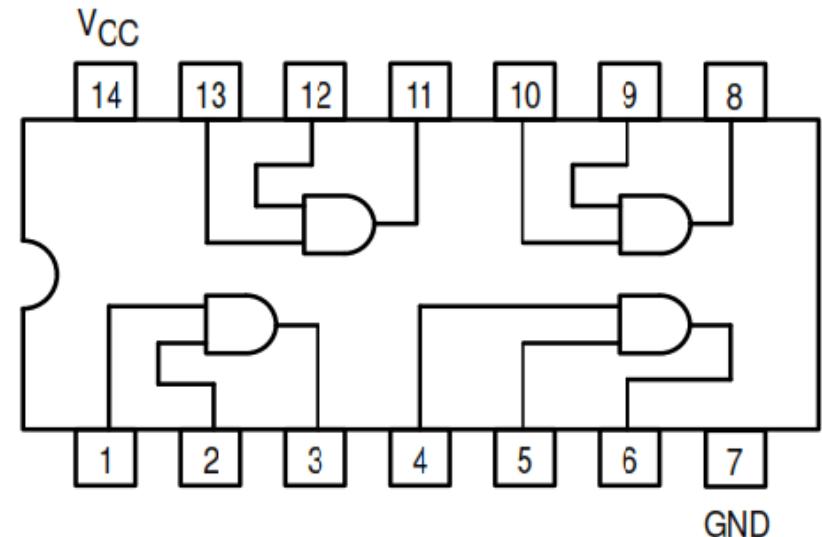
3 Input AND Gate

Truth Table

AND Gate IC and PIN Diagram



IC 7408 AND Gate IC



7408 IC PIN Diagram

- IC 7408 is a two input AND gate IC which contains four AND gate as shown in PIN diagram. To activate the IC +Vcc is provided at PIN 14 and ground at PIN 7.