

10 More logic gates – Part 2

Name: _____ Class: _____ Date: _____

Vocabulary

Write each word three times.

English

Write it 3 times (English)

NAND

NOR

XOR

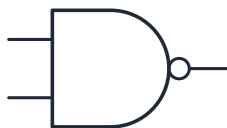
Recall

By combining the basic gates we get three more.

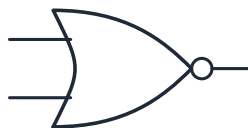
New ideas

Read these first, then do the Practice.

■ 1 NAND, NOR, XOR



NAND



NOR



XOR

- **NAND** = NOT AND (the opposite of AND);
- **NOR** = NOT OR (the opposite of OR);
- **XOR** : output 1 if the inputs are **different**.

■ 2 The OR truth table

A	B	A+B
0	0	0
0	1	1
1	0	1
1	1	1

 OR

Watch out: **NAND** and **NOR** are just AND and OR with the output *flipped* (NOT). **XOR** outputs 1 only when the two inputs are **different** (1 and 0) – not when they are the same.

Practice

Try these in order.

10.6 NAND is the opposite of which gate? [1]

10.7 NOR is the opposite of which gate? [1]

10.8 When does an XOR gate output 1? [1]

10.9 What is the output of 0 OR 0? [1]

10.10 What is the output of 1 OR 0? [1]

10.11 Challenge. Give the output of (a) 1 NAND 1, (b) 0 NOR 0, (c) 1 XOR 1. [3]