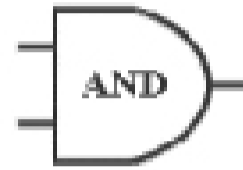
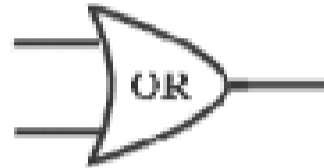


Circuits

- and gate



- or gate

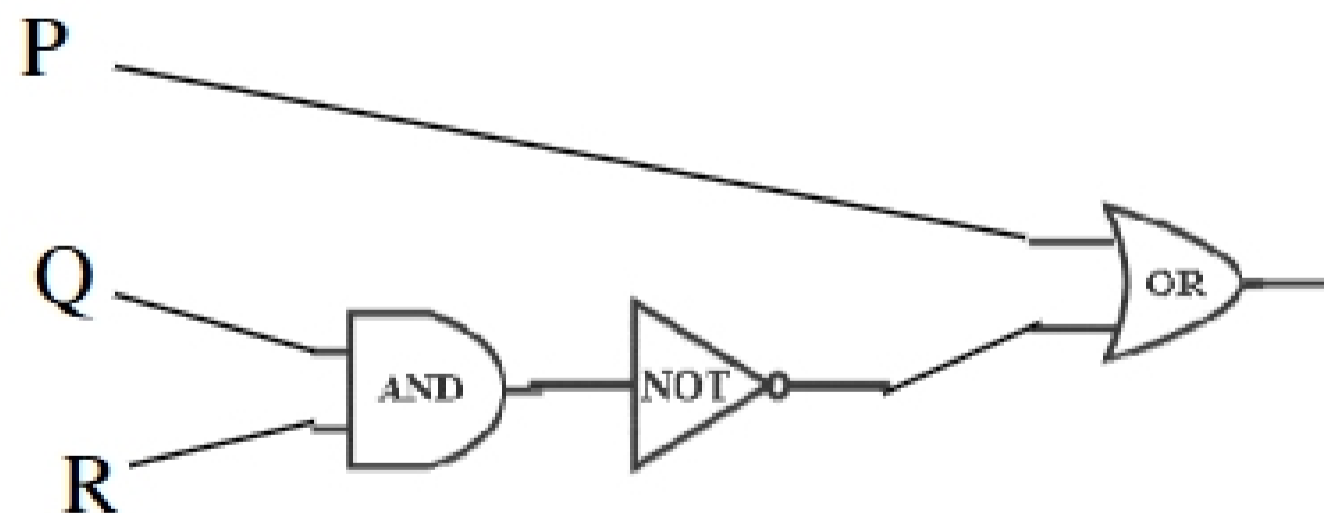


- not gate



Combining & Determining I/O Relationship

- $P \vee \sim (Q \wedge R)$



Draw the Circuit for:

P,Q&R

are

inputs

Simplify

before

building

the circuit

P	Q	R	Output
1	1	1	1
1	1	0	1
1	0	1	0
1	0	0	1
0	1	1	0
0	1	0	0
0	0	1	0
0	0	0	0

Number Conversions

- **Base of the Number System**
 - 10 (decimal), 2 (binary), 8 (octal), 16 (hexadecimal)
 - tells how many different numerals are used
 - determines the value of each place
- **Conversions from anything to Base 10**
 - use the definition of the number system
- **Conversions from Base 10 to anything**
 - use repeated integer division

Addition of Binary Numbers

- Carry if the number would be too large for the number system -- if it is greater than 1

1001	1001	1011	1101
+ 10	+ 11	+ 11	+111
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Addition of Oct and Hex Numbers

- Carry if the number would be too large for the number system (larger than 7 or 15)

723 ₈	265 ₈	ABC ₁₆	CDE ₁₆
+12 ₈	+ 33 ₈	+ 12 ₁₆	+ED ₁₆
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