Number Systems

Class	Computer Science

NUMBER SYSTEM	# OF SYMBOLS	SYMBOLS USED
Unary	1	0
Binary	2	0, 1
Ternary	3	0, 1, 2
Octal	8	0 → 7
Decimal	10	0 → 9
Undecimal	11	0 → 9, A
Duodecimal	12	0 → 9, A, B
Hexadecimal	16	0 → 9, A, B, C, D, E, F

> If the number isn't in base 10, always put the subscript for the base.

The largest symbol used is always 1 less than the number of symbols.

- When the number exceeds 9, start using alphabets. (A = 10, B = 11, etc.)

Bit = binary digit

- **Byte** = 8 bits
- **Nibble** = 4 bits

Expanded Notation

$342_{10} = 3 \times 10^2 + 4 \times 10^1 + 2 \times 10^0$

The maximum value of a set of bits is *2^(# of bits) - 1*.