Decimal = Hex = Oct = Binary
10 = A = 12 = 1010

- Hex represents 4 binary bits, prefixed "0x"
- Octal 3 bits, prefixed with 0
- Binary prefixed with 0b

Hex
F A 2 5
/ / | \
1111 1010 0010 0101

Oct
0 7 2 4
/ | \
111 010 100

AND
True if all operands are True
OR
True when any of operands are true
NOT
Inverse of operand
XOR
True if A and B are different
NAND, NOR, XNOR
Inverses of AND, OR, XOR

Shifting: move binary number n bits to the left (<<) or right (>>)
multiply by 2 ↑ divide by 2 →

Masking
mask = n(1 << position)
num & mask to clear bit at position

Binary Addition

Line up bits
& bits, carry

```
  1 1 1 1 1
  0 0 1 0 1 0 1 0
+ 1 1 1 1 0 1 1 0
-----------------
0 0 1 0 0 0 0 0
```

Two's Complement:
to represent a negative number, complement the num and add 1