

- $A \times 0 = 0$
- $A \times 1 = A$
- $1 \times 0 = 0$
- $1 \times 1 = 1$
- $A + 1 = 1$
- $A \times A = A$
- $A + A = A$

0x BC

$0x \overset{\uparrow\uparrow}{BC} = 0b \overset{\uparrow\uparrow}{1011} \overset{\uparrow\uparrow}{1100}$
HEX

13

$1111 = 15 = F$

8 4 2 1

Decimal HEX

0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	A
11	B
12	C
13	D
14	E
15	F
16	10

$\&$
 ↓
 bit-wise
 AND

|
 ↓
 bit-wise
 OR

$\&\&$
 Logic AND

||
 Logic OR

①

$$A = 0b1011 \ \& \ 0b0100;$$

↙

$$A = 0b0000$$

$$\begin{array}{r} 1011 \\ 0100 \\ \hline 0000 \end{array}$$

$$0b0000 = 0;$$

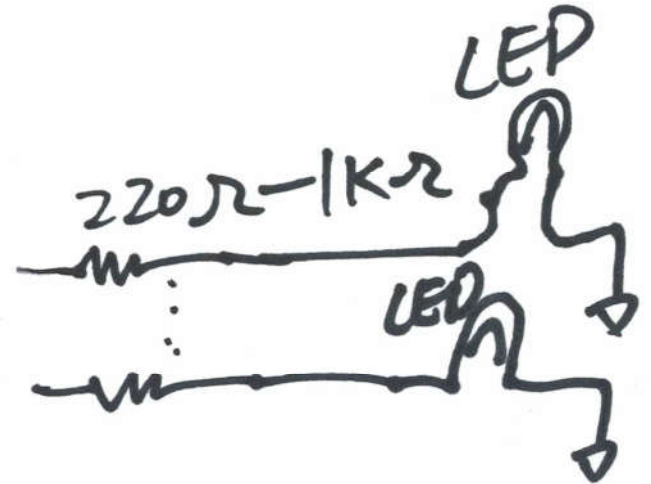
$$\begin{array}{cccccc} \boxed{0} & \boxed{0} & \boxed{0} & \boxed{0} & \boxed{1} & \boxed{0} & \boxed{1} & \boxed{0} \\ \boxed{0} & \boxed{0} & \boxed{0} & \boxed{1} & \boxed{0} & \boxed{1} & \boxed{0} & \boxed{0} & \llcorner | \\ 0 & 0 & 0 & 0 & 0 & 1 & 0 & 1 & \gg | \end{array}$$

(2)

Data $\square \square \square \square \square \square \square \square \square \square$
Mask = $! \rightarrow 060000000001$

Result = Data & Mask

dataArray[i] =



3

Byte Data = 0b(00010110);
00000001

~~Byte~~ Mask = 1;
int i;
int dataDisp[5];

void setUpCIS
{

TRUE means
non-zero

void loop() {
for (i=0; i<5; i++) {
if (Data & Mask) {
dataDisp[i] = 1;
}
else {
dataDisp[i] = 0;
}
}
}

(i is True)
mask = mask << 1;
dataDisp[5]
mask = mask << 1;
□ □ □ □ □

4

```
{
  digitalWrite(13, dataDisp[0]);
  digitalWrite(12, dataDisp[1]);
  :
  digitalWrite(9, dataDisp[4]);
}
```