

A	B	A&B
0	0	0
0	1	0
1	0	0
1	1	1

AC & FO = ?

$$\begin{array}{r}
 1010 \ 1100 \\
 \& \ 1111 \ 0000 \\
 \hline
 1010 \ 0000 = AD
 \end{array}$$

0 & 0 = 0

X & 1 = X

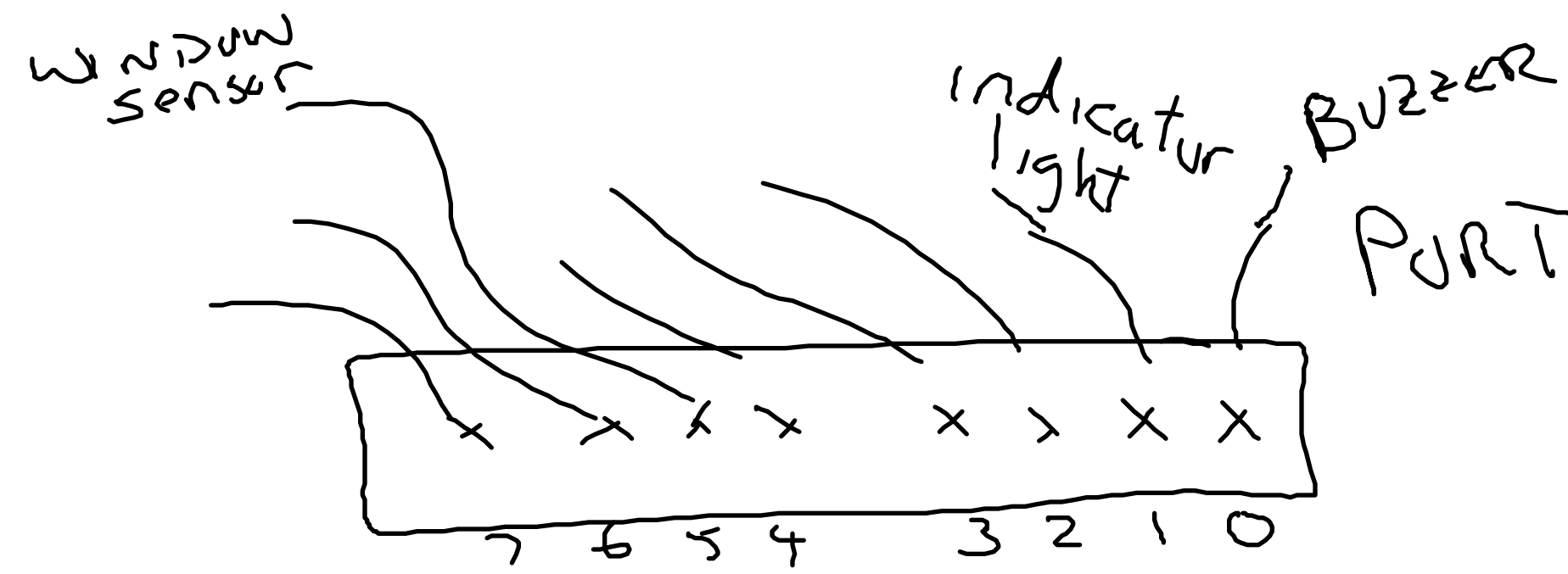
A	B	A B
0	0	0
0	1	1
1	0	1
1	1	1

AC | FO = ?

$$\begin{array}{r}
 1010 \ 1100 \\
 1111 \ 0000 \\
 \hline
 1111 \ 1100 \\
 X / 0 = X \\
 X / 1 = 1
 \end{array}$$

ACTIVE
TUTOR
wed & thurs
5-6:30 pm
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A	B	A&B
0	0	0
0	1	0
1	0	0
1	1	1



Change "indicator light" bit to 1
 WITHOUT CHANGING ANY OTHER BITS

$PORT \leftarrow PORT | 2$ set bit 1 to 1
 $PORT \leftarrow PORT | 0b10$ " " " "

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

A	$\sim A$
0	1
1	0

change indicator light to 0
 * w/o changing other bits *

$PORT \leftarrow PORT \& 0b11111101$

$PORT \leftarrow PORT \& \sim 2$

$PORT \leftarrow PORT \& \sim 0b10$

$PORT \leftarrow PORT \& \sim 00000010$
 $\leftarrow PORT \& 11111101$

Max value for given

# bits	# values	bits unsigned Possible range 1	signed Possible range 2
1	2	0-1	
2	4	0-3	-4 → +3
3	8	0-7	-8 → +7
4	16	0-15	
n	2^n	0- (2^n-1)	-128 → +127
8	256	0-255	-32768 → +32767
16	65536	0-65535	-2 bill → +2 bill
32	4 Billion		

00, 01, 10, 11

000, 001, 010, 011, 100, 101, 110, 111

Integer constants

- must contain 1 or more digits
- may begin with + or -
- may not contain , or .
(or any other symbol)
- must be in range for given size
- valid integers:
12 +0 -0 0 -320
1000000000 (for 32 bit)

- invalid:

3. 1,000 6.18

17+

- integers may be stored
in 1, 2, 4, or 8 bytes
(specified by programmer)

float constant

- must contain 1 or more digits
- must contain exactly 1 decimal point
- may begin with + or -
- precision is 7 to 8 significant digits
- may contain a suffix of e followed by integer
- always has suffix of f
- occupies 4 bytes

3.14f
6.023fe23 $\times 10^{\square}$
0.0f
-1.09fe-19