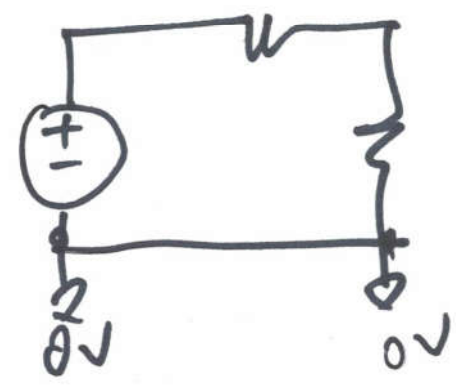
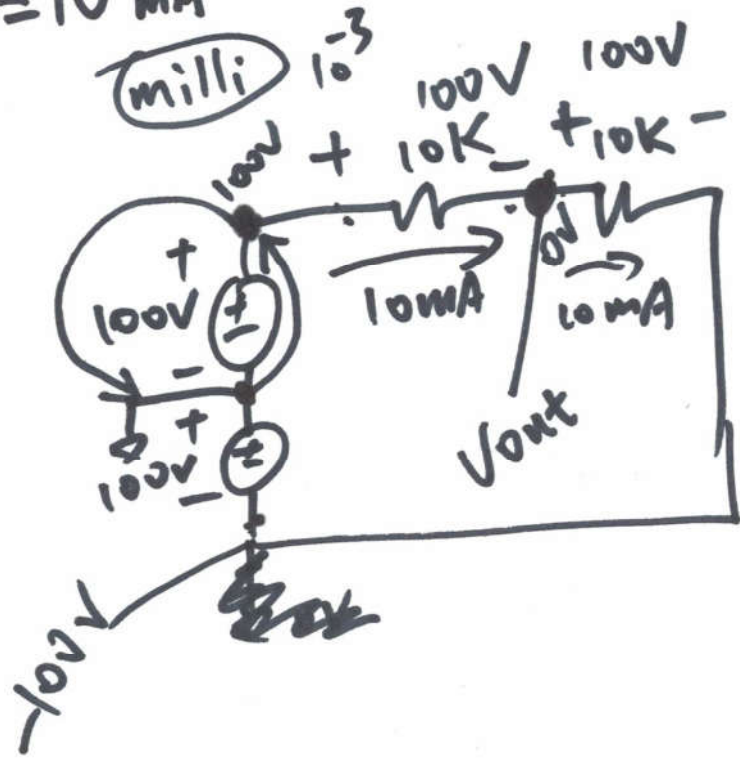


$$I = \frac{200V}{20K\Omega} = 10 \text{ mA}$$

(milli) 10^{-3}



Binary \rightarrow Decimal

$1011_2 \rightarrow 11$

3 2 1
↑ ↑ ↑
3 2 1
↑ ↑ ↑
1 0 1 1
↑ ↑ ↑ ↑

$101111_2 \rightarrow 32 + 8 + 4 + 2 + 1 = 47$

↑ ↑ ↑ ↑ ↑ ↑
5 2 2 2 2 2
3 2 1

~~47~~
 $47_{(10)} \rightarrow$

$2 \overline{)47}$
 $2 \overline{)23}$
 $2 \overline{)11}$
 $2 \overline{)5}$
 $2 \overline{)2}$
 $2 \overline{)1}$
0

1
0
1
0
1
0

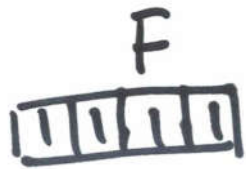
$2 \overline{)101111}$
 $2 \overline{)10111}$
 $2 \overline{)1011}$
 $2 \overline{)101}$
 $2 \overline{)10}$
 $2 \overline{)1}$
0

1
0
1
0
1
0

Decimal \rightarrow Binary

$10 \overline{)2021}$
 $10 \overline{)202}$
 $10 \overline{)20}$
 $10 \overline{)2}$
0

1
2
0
2



E
1 1 1 0

$$2^4 = 16$$

$$10000$$

$$\uparrow$$

$$16$$

$$\begin{array}{r} 10000 \\ - \\ \hline 01111 \end{array}$$

HEX \rightarrow decimal

HEX \rightarrow Binary

A B C = ~~15~~ $A \times 16^2 + B \times 16^1 + C \times 16^0$

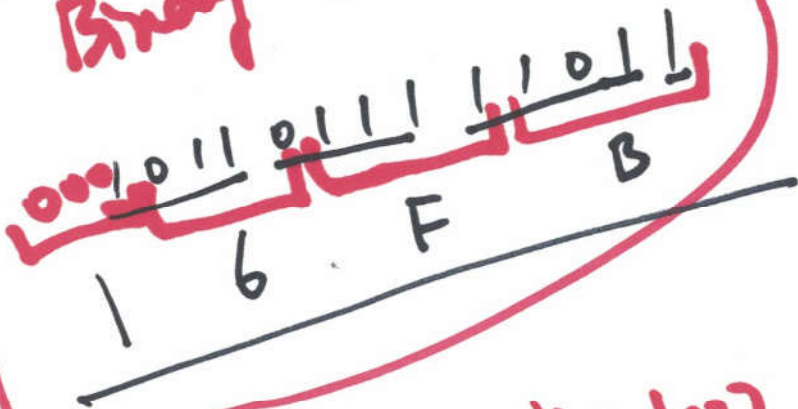
$$= 2560 + 176 + 12 \times 1$$

$$= 2736 + 12 = \underline{\underline{2748}}$$

2021
 \uparrow
2x6

1010 1011 1100

Binary - HEX



$16 \times 16 = 2560$ Decimal \rightarrow HEX

$$\begin{array}{r} 16 \overline{) 2567} \\ \underline{160} \\ 16 \overline{) 10} \\ \underline{0} \\ 0 \end{array}$$

7
0
A

$$\downarrow$$

$$2 \ 1 \ 1 \ (3)$$

$$= 2 \times 3^2 + 1 \times 3^1 + 1 \times 3^0$$

$$= 18 + 3 + 1$$

$$= 22$$

3

Computer Logic

AND X
OR +

| | |
|------------------------|-----------------------|
| $1 \text{ AND } 1 = 1$ | $1 \text{ OR } 1 = 1$ |
| $1 \text{ AND } 0 = 0$ | $1 \text{ OR } 0 = 1$ |
| $0 \text{ AND } 1 = 0$ | $0 \text{ OR } 1 = 1$ |
| $0 \text{ AND } 0 = 0$ | $0 \text{ OR } 0 = 0$ |



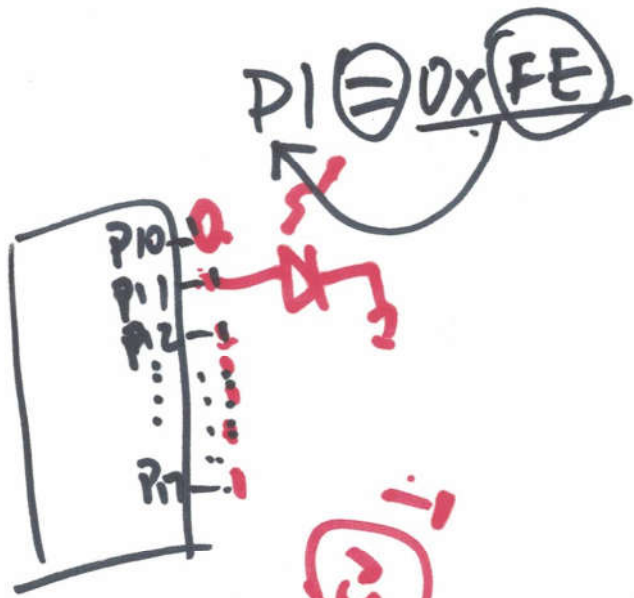
$\bar{1} = 0 \quad \bar{0} = 1$

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

- $A + A = A$
- $A \times B = AB$

- $\bar{A} \times 1 = \bar{A}$
- $\bar{A} \times A = 0$
- $\bar{A} \times \bar{A} = \bar{A}$

| | | | | |
|------------|---|-----------|---|-----------|
| <u>AND</u> | 0 | 1 | A | \bar{A} |
| 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | 1 | A | \bar{A} |
| A | 0 | A | A | 0 |
| \bar{A} | 0 | \bar{A} | 0 | \bar{A} |



FE
1111 1110

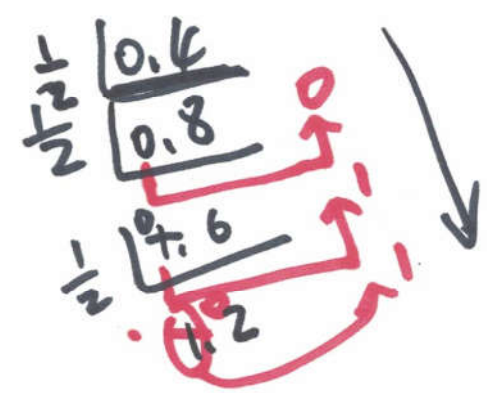
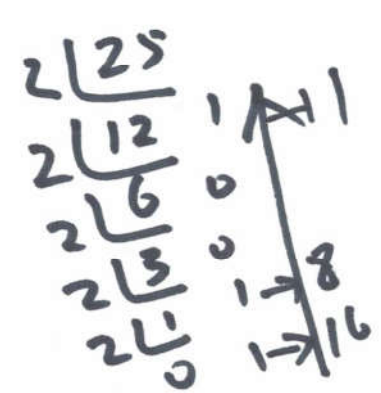
2021.2
 2×10^{-1}



- ① $A \cdot B = B \cdot A$
- ② $A \cdot (B + C) = AB + AC$
- ③ $A + B = B + A$

$101.11 = 1 \times 2^2 + 0 \times 2^1 + 1 \times 2^0 + 1 \times 2^{-1} + 1 \times 2^{-2}$

$25.4 = 11001.011$



5

$$\begin{array}{r}
 \frac{1}{2} \sqrt{0.011} \\
 \frac{1}{2} \sqrt{0.11} \\
 \frac{1}{2} \sqrt{1.1} \\
 \sqrt{10}
 \end{array}
 \begin{array}{l}
 0 \\
 - \\
 -
 \end{array}$$

(6)