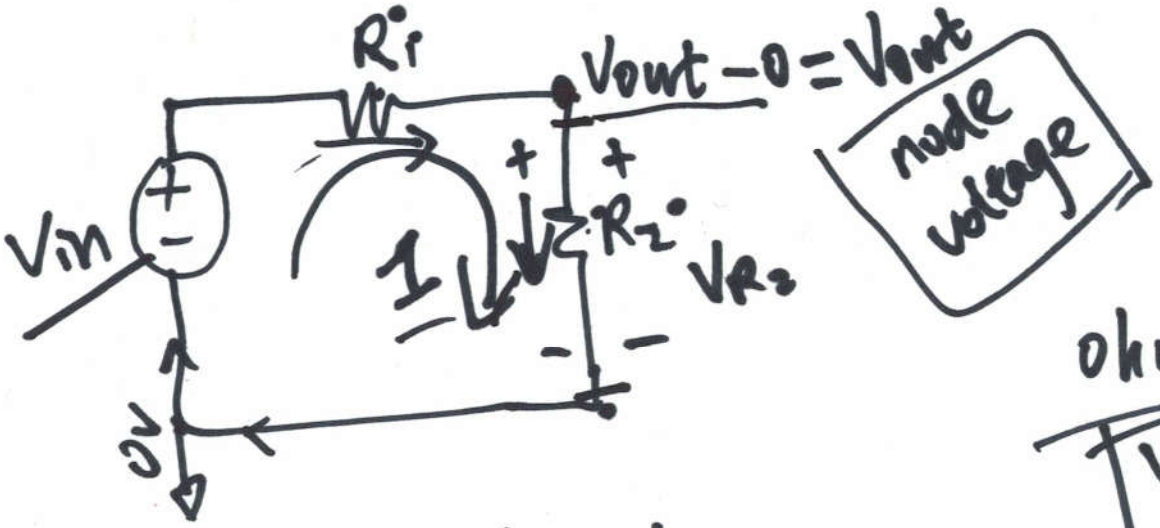


ohm's law:

$$V_{R_2} = I \cdot R_2$$

$$I = \frac{V_{R_2}}{R_2}$$

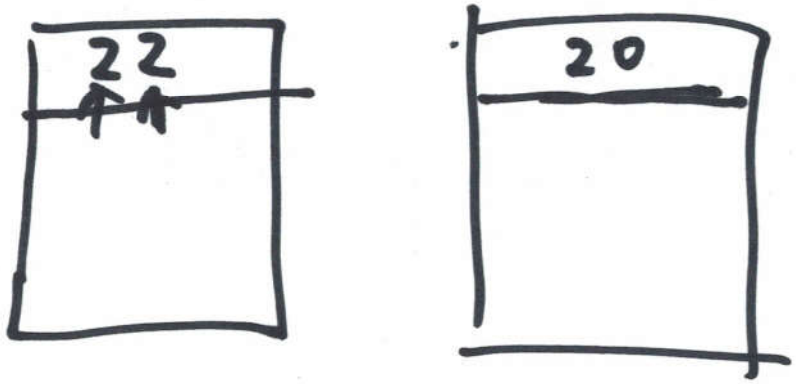
$$R_2 = \frac{V_{R_2}}{I}$$

→ The voltage divider theory

$$V_{out} = V_{in} \cdot \frac{R_2}{R_1 + R_2}$$

$$\frac{V_{out}}{V_{in}} = \frac{R_2}{R_1 + R_2} \Rightarrow V_{out} = V_{in} \cdot \frac{R_2}{R_1 + R_2}$$

$$\frac{V_{out}}{R_2} = \frac{V_{in}}{R_1 + R_2} \Rightarrow V_{out} = V_{in} \cdot \frac{R_2}{R_1 + R_2}$$



$22 = 2 \times 10^1 + 2 \times 10^0$

0 1 2 3 ~~4 5 6 7 8 9~~ 10

0 1 2 3 10

0 1 10

$10_{(4)} = 1 \times 4^1 + 0 \times 4^0 = 4$

$10_{(2)} = 1 \times 2^1 + 0 \times 2^0 = 2$

binary

(2)

Decimal	Binary	Octal	Hex
0	0	0	0
1	1	1	1
2	10	2	2
3	11	3	3
4	100	4	4
5	101	5	5
6	110	6	6
7	111	7	7
8	1000	10	8
9	1001	11	9
10	1010	12	A
11	1011	13	B
12	1100	14	C
13	1101	15	D
14	1110	16	E
15	1111	17	F
16	10000	20	10
17			11

```
  11
+  1
 100

 101
+  1
 110
```

$2^{10} = 1024$

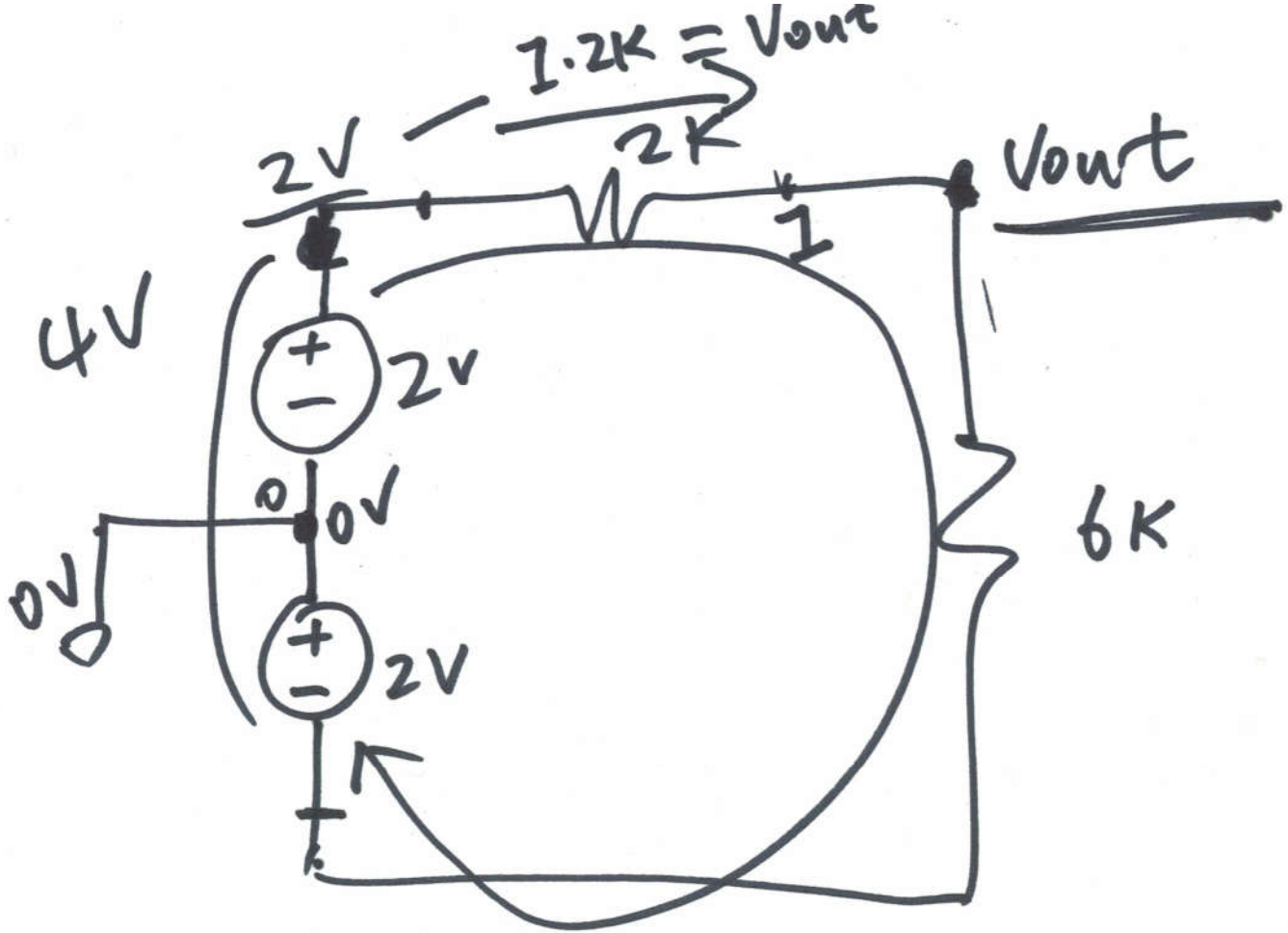
$2^{10} \times 2^{10} = 1024 \times 1024$

$2^{10} \times 2^{10} \times 2^{10} =$

$2^{10} \times 2^{10} \times$

1010
↑ ↑
8 2

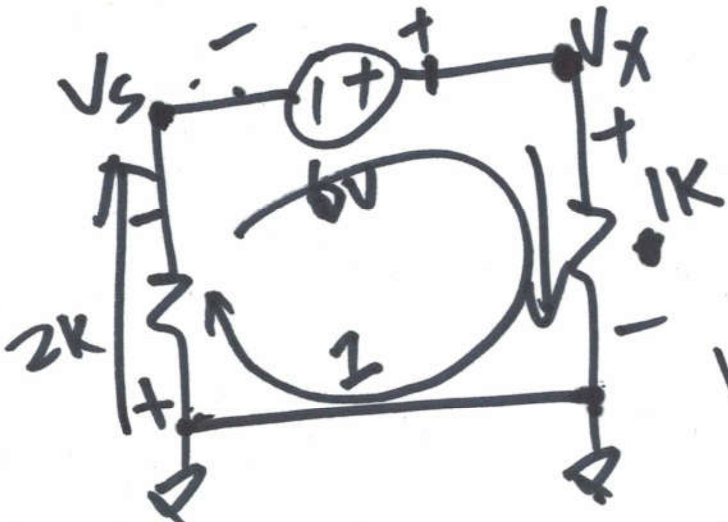
111111111100



$$I = \frac{4V}{2K+6K} = 0,5\,mA$$

0,4

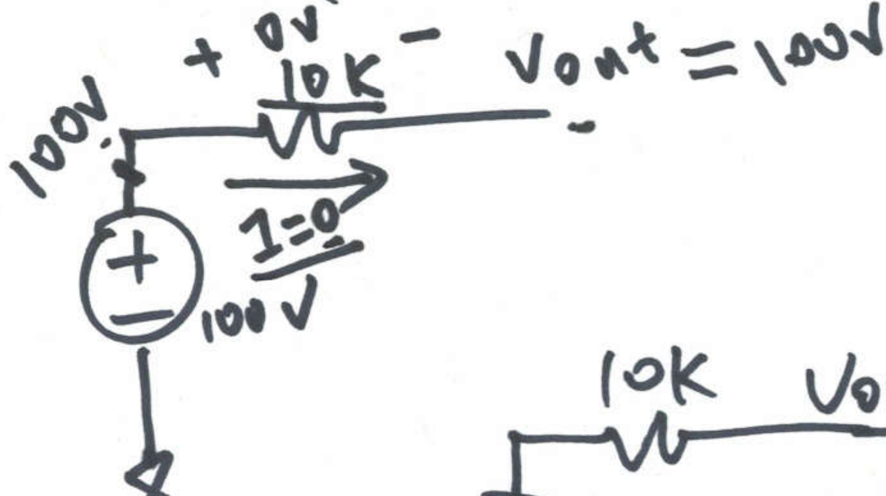
Node voltage

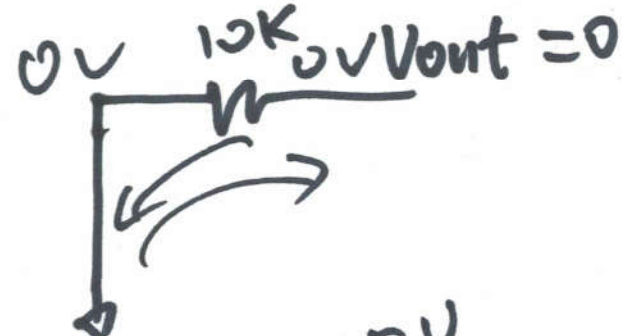


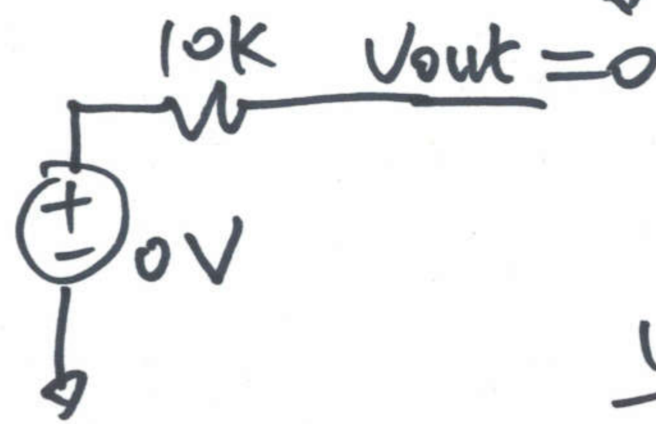
$V_s = -I \cdot 2K$

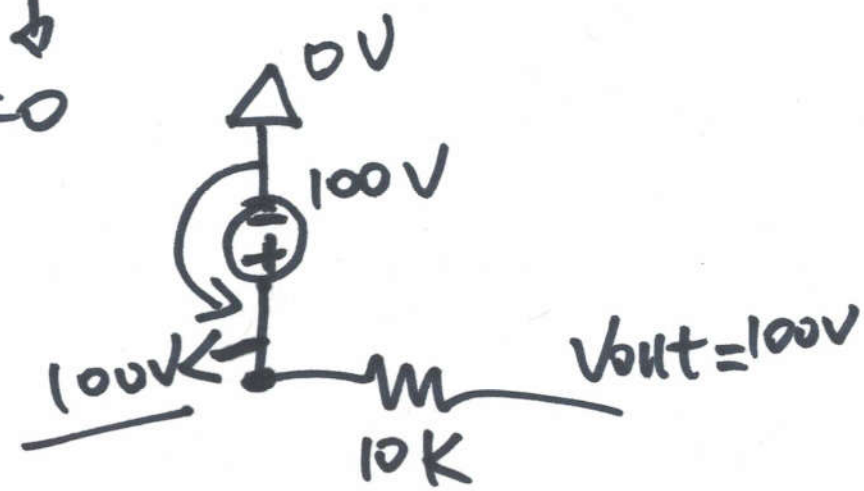
$$I = \frac{6V}{2K + 1K}$$

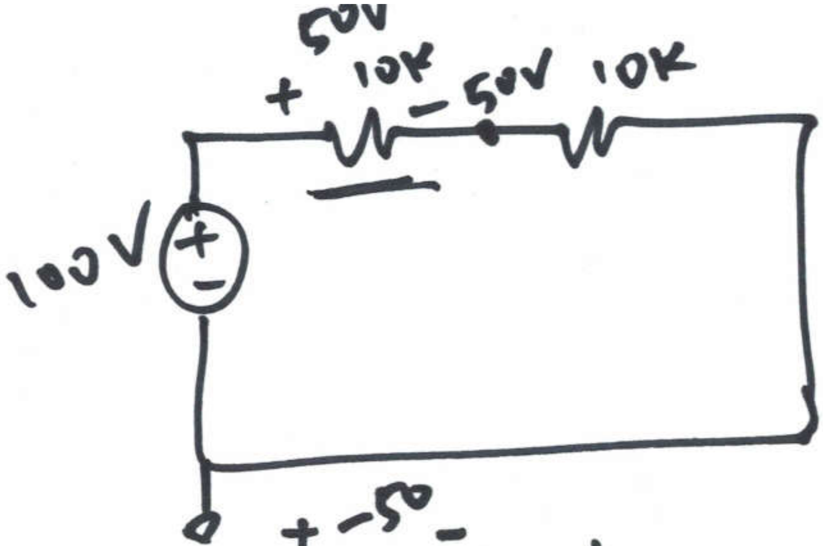
$$V_x = I \cdot 1K$$

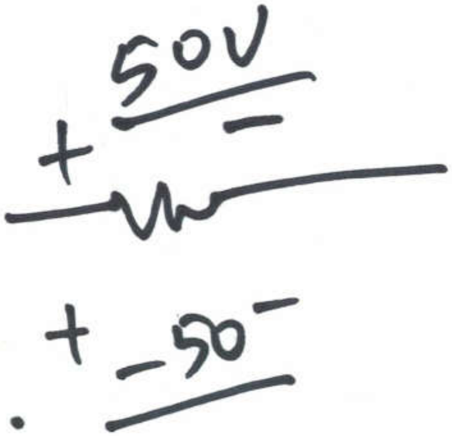


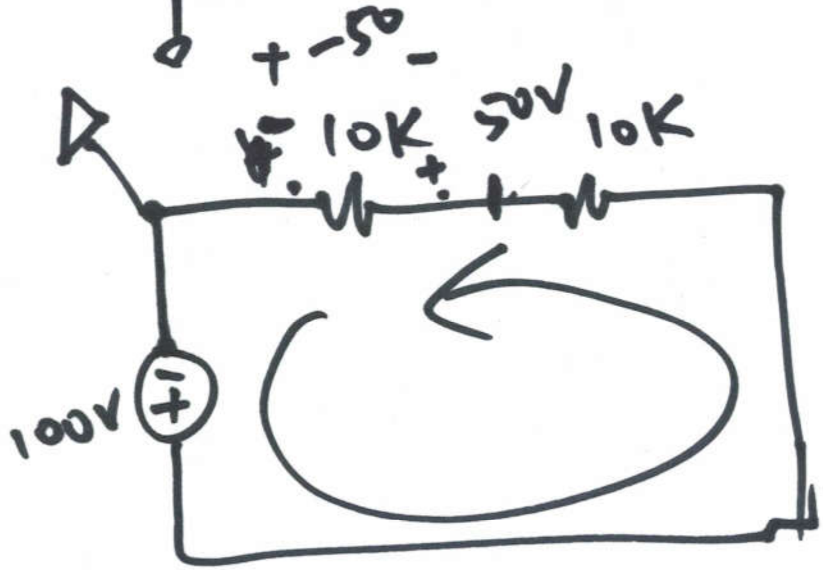












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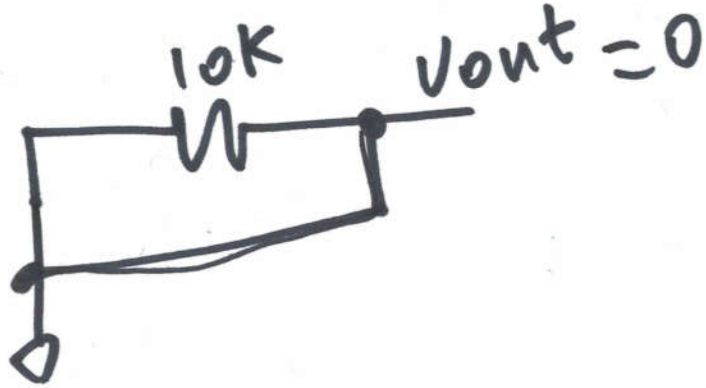

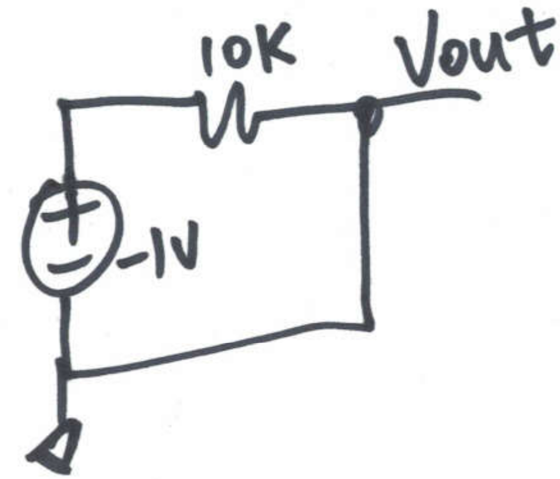

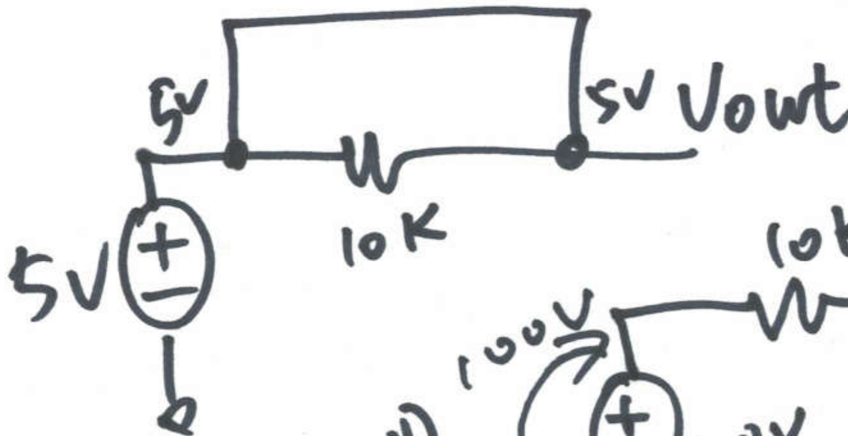

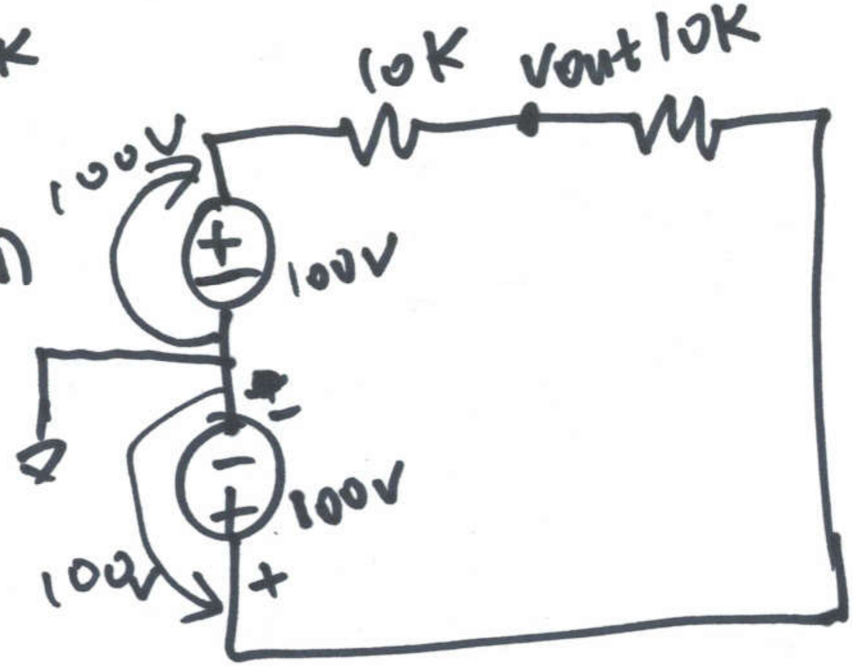

$P = V \cdot I = I^2 R \, (W) = \frac{V^2}{R}$