

1st circuit: (one $33k\Omega$ resistor)

6.7 mV (battery)

0.0201 mA

2nd Circuit (11 and 22 $k\Omega$ resistors in series)

v_{battery}: 6.2 mV

voltage 1: 2.3 mV

voltage 2: 4.4 mV

0.184 mA

3rd:

v_{battery} = 6.2mV

v₁ = 1.1mV

v₂ = 2.1mV

v₃ = 3.1 mV

$I_3 = 0.093$ mA

Resistors:

$R_1 = 11.3 k\Omega$

$R_2 = 21.7k\Omega$

$R_3 = 32.7k\Omega$

4th circuit:

$V_{battery} = 6.3mV$

$$I_1 = 0.193mV$$

$$I_2 = 0.289mV$$

$$I_3 = 0.552mV$$

$$I_{total} = 1.03mV$$

$$V_{battery} = 6.3mV$$

Exercise 3: within A and B

$$v_{out} = 1.6$$

$$v_{battery} = 6.4mA$$

$$R_1 = 11.3 \text{ k}\Omega$$