

EE49 Prelab

a) Circuit A

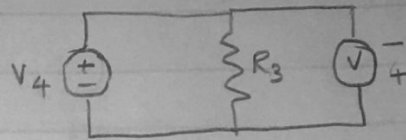


$$V_1 - V = 0 \quad \text{by KVL}$$

$$V_1 = V = 3V$$

$$\boxed{V = 3V}$$

Circuit D

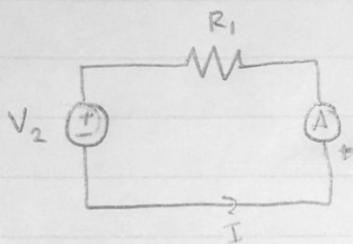


$$V_4 + V = 0 \quad \text{by KVL}$$

$$V_4 = -V$$

$$\boxed{V = -3V}$$

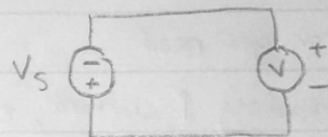
Circuit B



$$A = \frac{\text{voltage}}{\text{resistance}} = 3V / 5k\Omega$$

$$\boxed{A = 0.6 \text{ mA}}$$

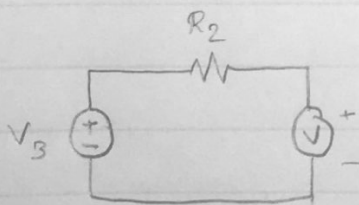
Circuit E



$$V_5 + V = 0 \quad (\text{KVL})$$

$$\boxed{V = -3V}$$

Circuit C

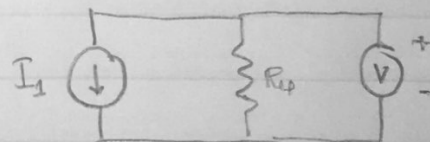


$$V_3 - V = 0 \quad \text{by KVL}$$

$$V_3 = V$$

$$\boxed{V = 3V}$$

Circuit F



$$V = IR$$

$$= I_1 \cdot 0 \quad (\text{open wire})$$

$$= 0V$$

$$\boxed{V = 0V}$$

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b) Circuit A

$$P = IV = 0 \cdot V = 0$$

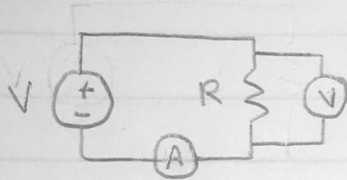
$$P = 0 \text{ W}$$

Circuit B

$$P = IV = I \cdot 0 = 0$$

$$P = 0 \text{ W}$$

$$P = IV = 3.8 \text{ V} \cdot 40 \text{ mA} = 152 \text{ mW}$$



For each resistor you need

→ voltage reading & current, everything else is calculable

4.2 Reading

a) The power rails are not connected.

b) 60/40 Solder - 370°C

Lead-free Solder - 400°C