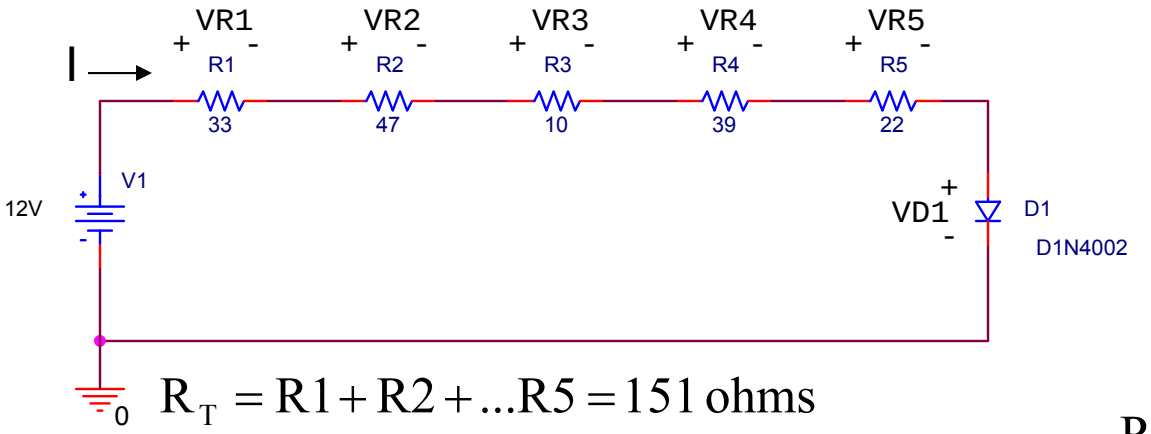
Breakout Exercise #1

- Assuming V_{D1} = 0.7V, How much power is dissipated by R3? By R5? R1 through R5 combined?
- Assuming V_{D1} = 0.7V, How much power is supplied by the source, V1?



$$R_T = R1 + R2 + \ldots R5 = 151\,\text{ohms}$$

$$I = \frac{12V - 0.7V}{R_T} = \frac{11.3V}{151\,\text{ohms}} = 74.83mA$$

$$P_{V1} = V_1 \cdot I = 898\text{mW}$$

$$P_{Rx} = I^2 Rx$$

$$P_{R3} = 56\text{mW}$$

$$P_{R5} = 123.2\text{mW}$$

$$P_{RT} = 845.5\text{mW}$$

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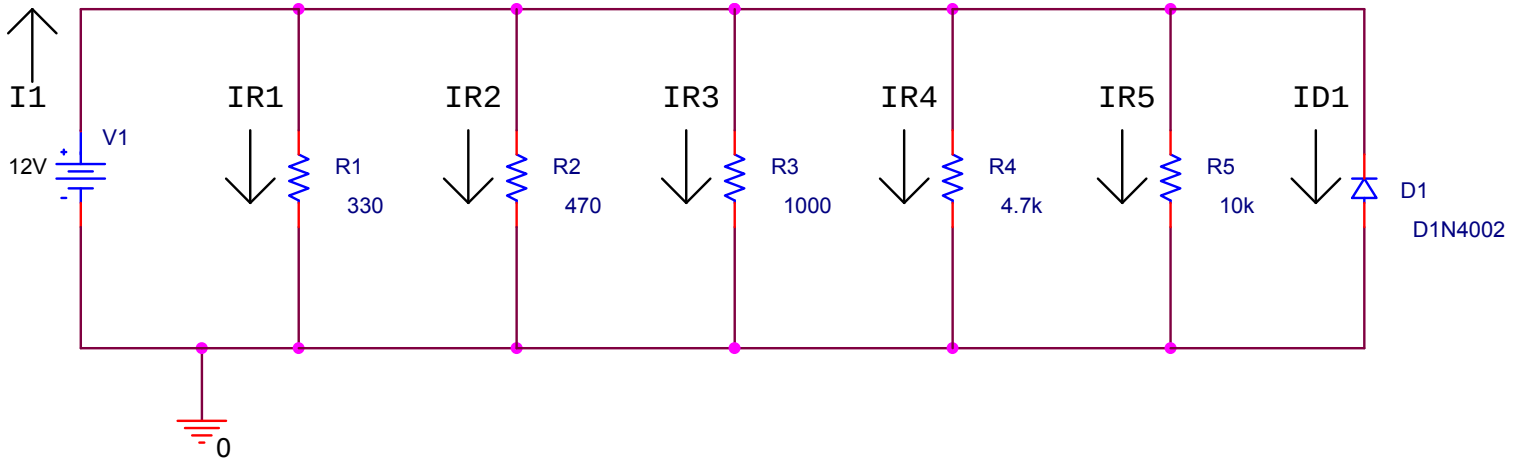
Breakout Exercise #2

- How much power is dissipated by R2? R4?
- How much power is supplied by the source, V1?
- How much power is dissipated by the combination of R1 through R5?



$$P_{Rx} = \frac{V_1^2}{Rx}$$

$$P_{R2} = 306.4\text{mW}$$

$$P_{R4} = 30.64\text{mW}$$

$$I_1 = \frac{V_1}{R_T} + I_{D1} \approx \frac{12\text{V}}{154.5\Omega} = 77.67\text{mA}$$

$$P_{V1} = V_1 \cdot I_1 = 12\text{V} \cdot 77.67\text{mA} = 932\text{mW}$$

$$P_{RT} = \frac{V_1^2}{R_T} = \frac{(12\text{V})^2}{154.5\Omega} = 932\text{mW}$$

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