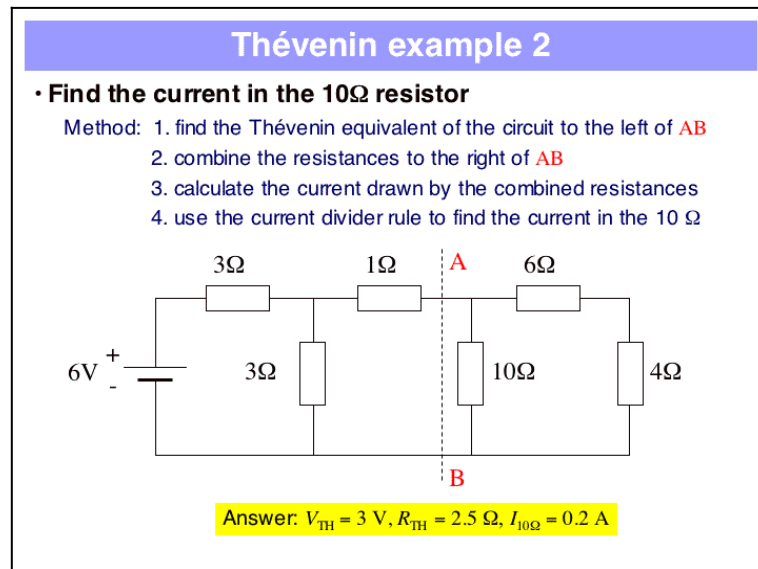


Problem 1

This problem is very similar to the problem in the video recordings Week 03b, except that you have to do a little more work at the end to find the required current. I've indicated the method you should use.



Further problems

2) A battery has an open circuit voltage, V , and an internal resistance, r . When a 5.0 Ohm resistor is connected across the terminals, the current is 0.5 A. When this resistor is replaced by an 11.0 Ohm resistor, the current is 0.25 A. Find,

- the open-circuit voltage, V ,
 - the internal resistance, r .
 - What value of load resistance would yield the most power in the load and
 - what is the maximum power dissipated in the load.
- (Answers: a) 3V, b) 1 Ohm, c) 1 Ohm, d) 2.25 W.)

3) Determine the Thévenin equivalent circuit for the circuit shown below. If a load of resistance 50 Ohm is connected to the output terminals AB, what is the current in the load?

(Answers: $V_{TH} = 50\text{ mV}$, $R_{TH} = 83.3\text{ Ohm}$, $I_L = 0.375\text{ mA}$)

