



Faculty of Engineering and Technology

Department of Electrical and Computer Engineering

Basic Electrical Engineering Lab (ENEE2101)

Experiment 4 Prelab

Network Theorems

Prepared by:

Abeer Awawda 1201848

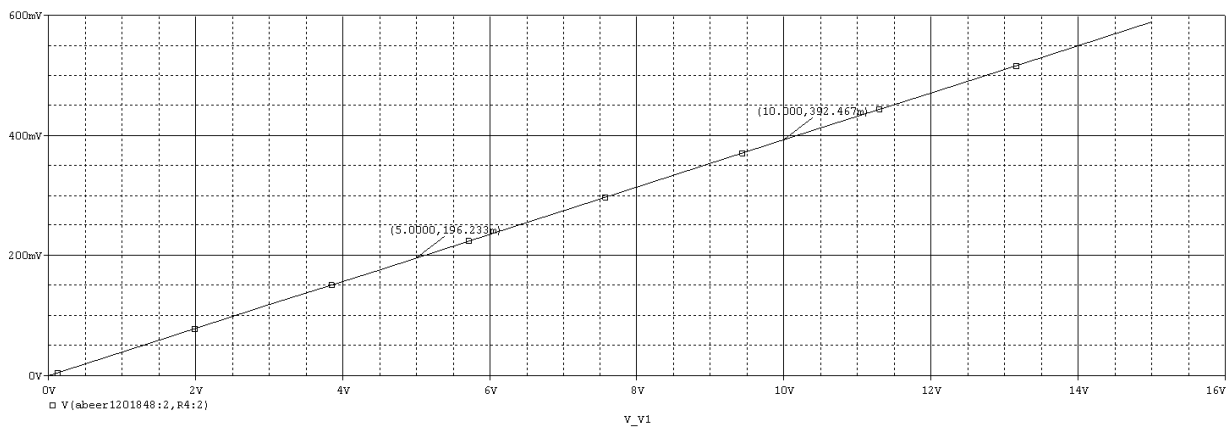
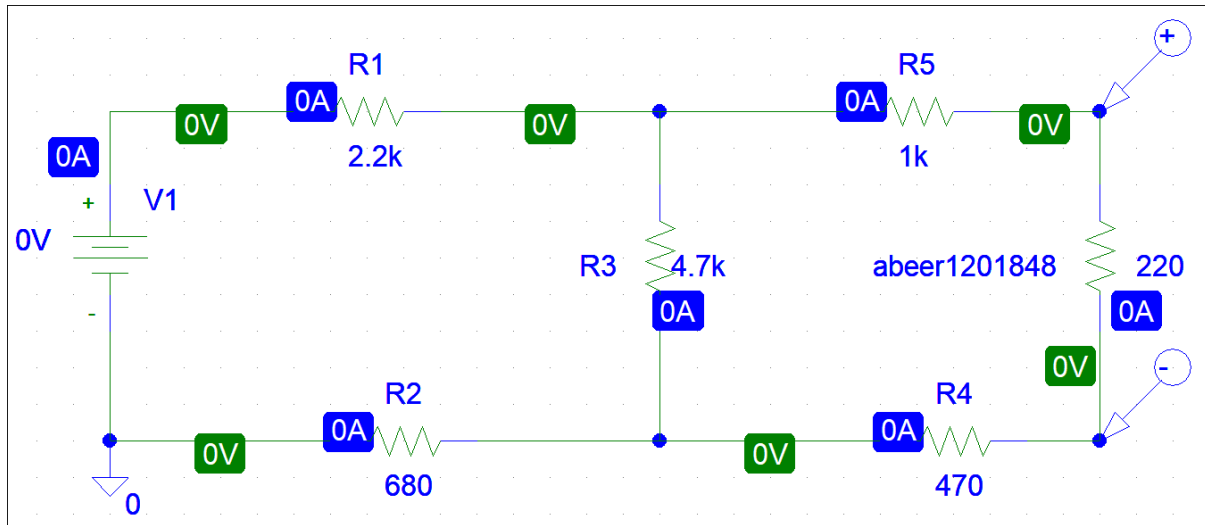
Instructor: Dr. Jaser Sa'ed

TA: Eng. Shadi Bannoura

Section: 1

Date: 15/11 / 2022

Part A: proportionality



Part B: Superposition

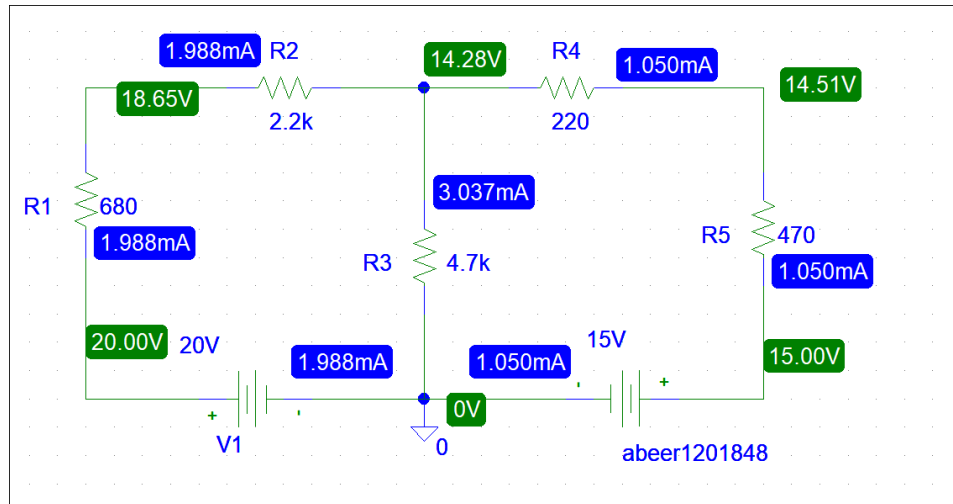


Figure 4.2

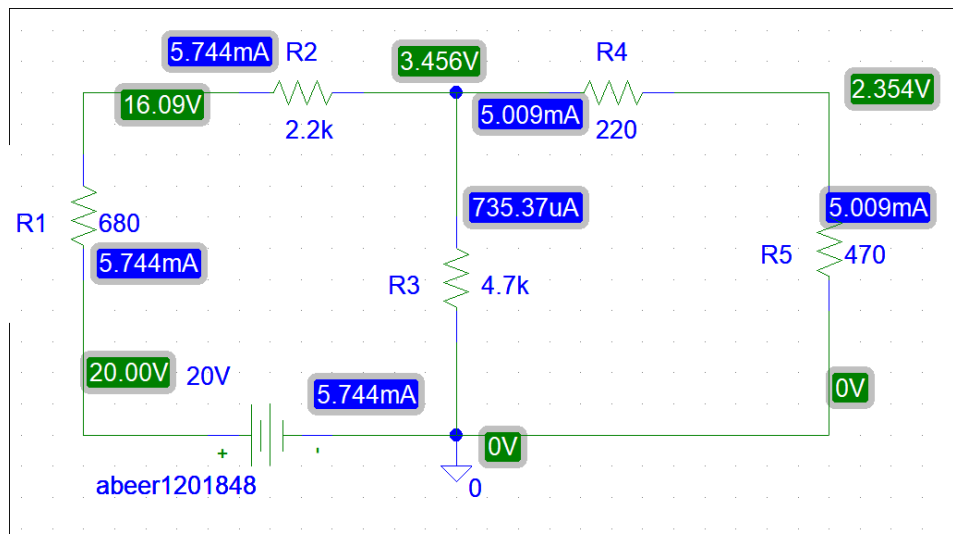


Figure 4.3

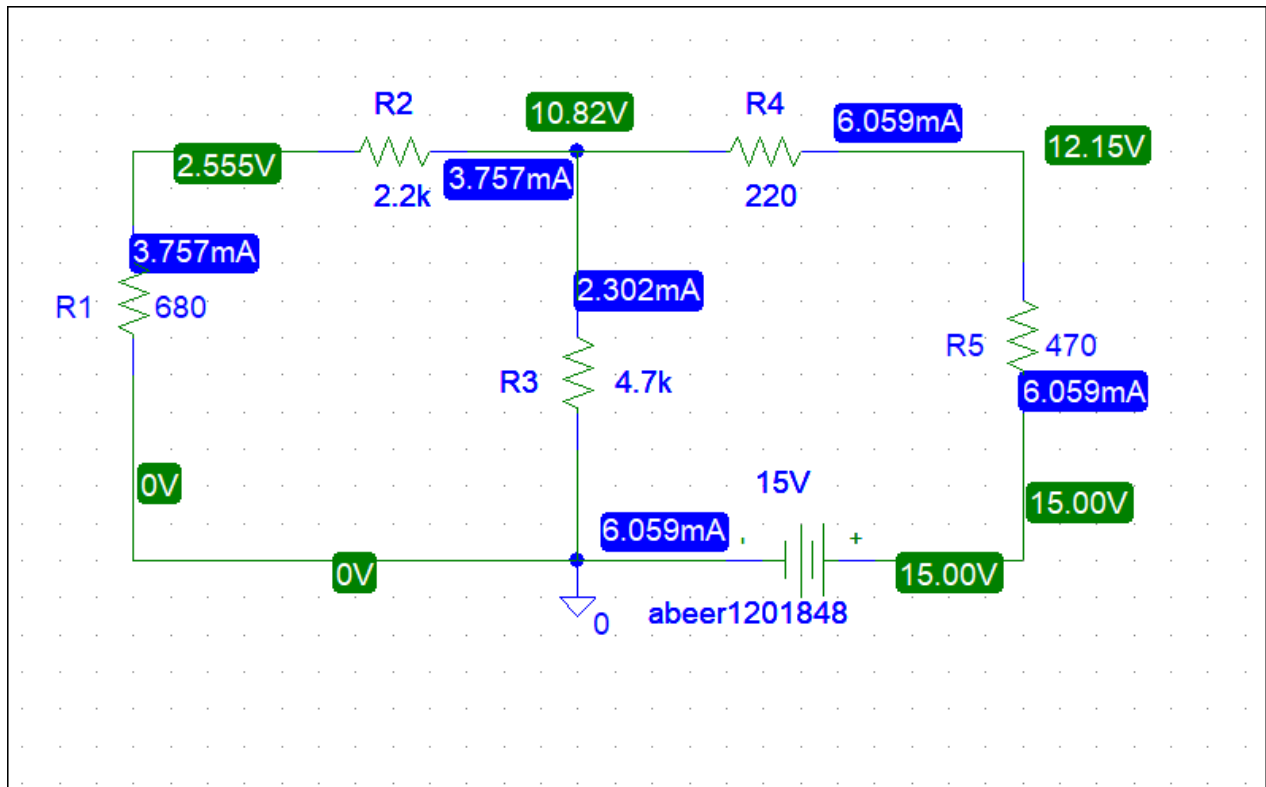
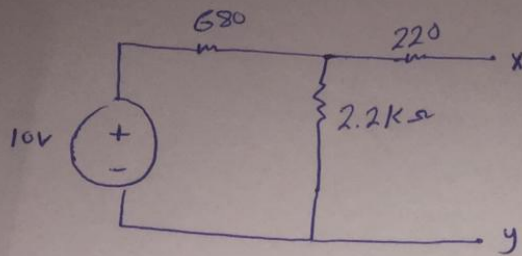


Figure 4.4

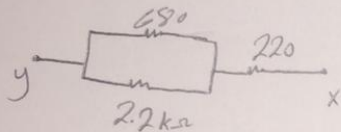
Part C: Thevenins Theorem



Abeer Awawda
1201848

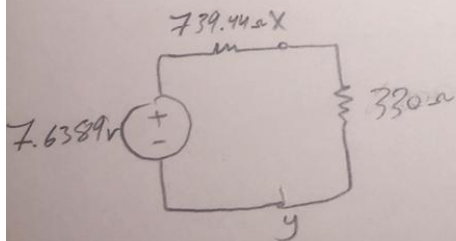
$$V_{xy} = V_{2.2k} \Rightarrow V_{2.2k} = \frac{10 \times 2200}{2200 + 680} = 7.6389 \text{ Volt} = V_{Th}$$

R_{Th} by Killing Sources:



$$= 220 + \frac{2200 \times 680}{2200 + 680} = 739.44 \Omega$$

\therefore Thevenin eq circuit:-



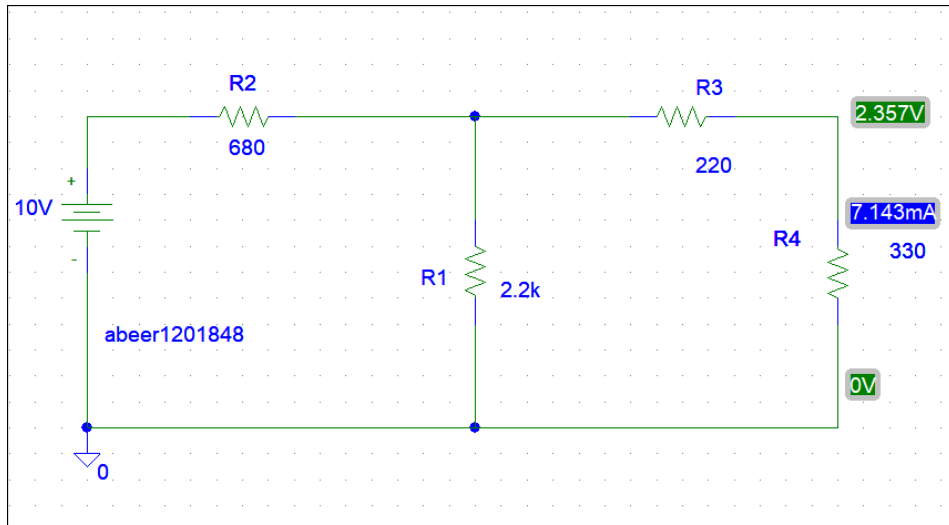


Figure 4.5

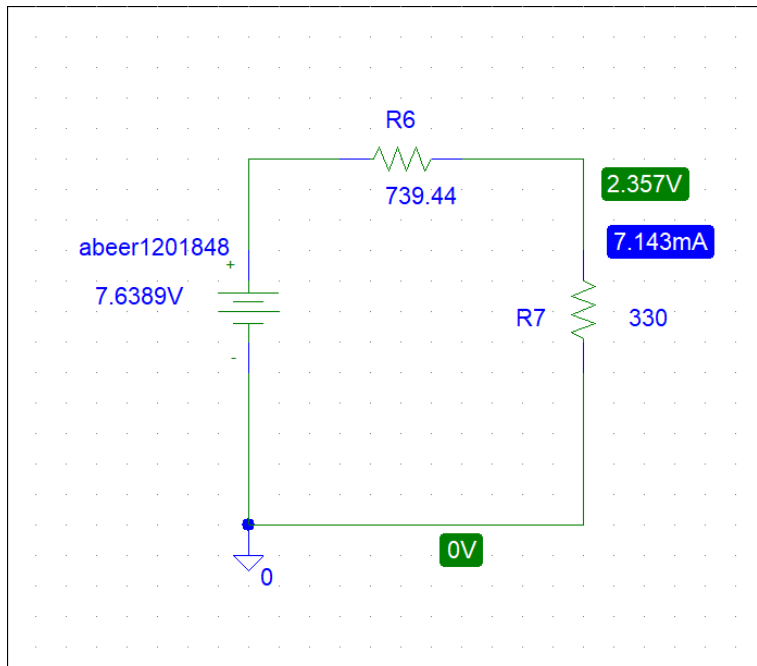
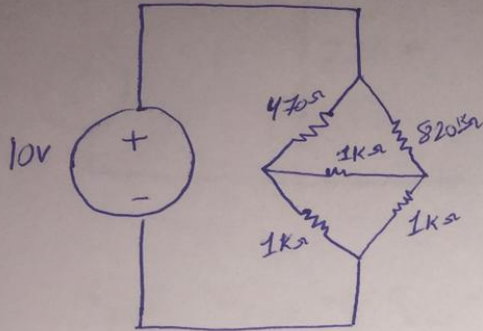


Figure 4.7

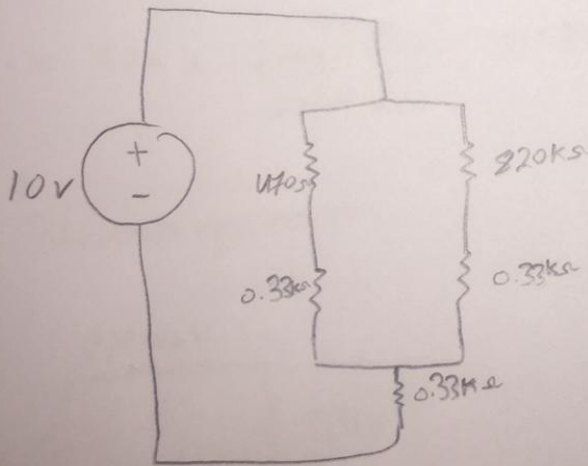
Part D:d-Y Transformation

Abeer Alkubda 1201848



The Three resistor are equivalent

$$R_y = \frac{R_D}{3} \rightarrow R_y = \frac{1k\Omega}{3} = 0.33k\Omega$$



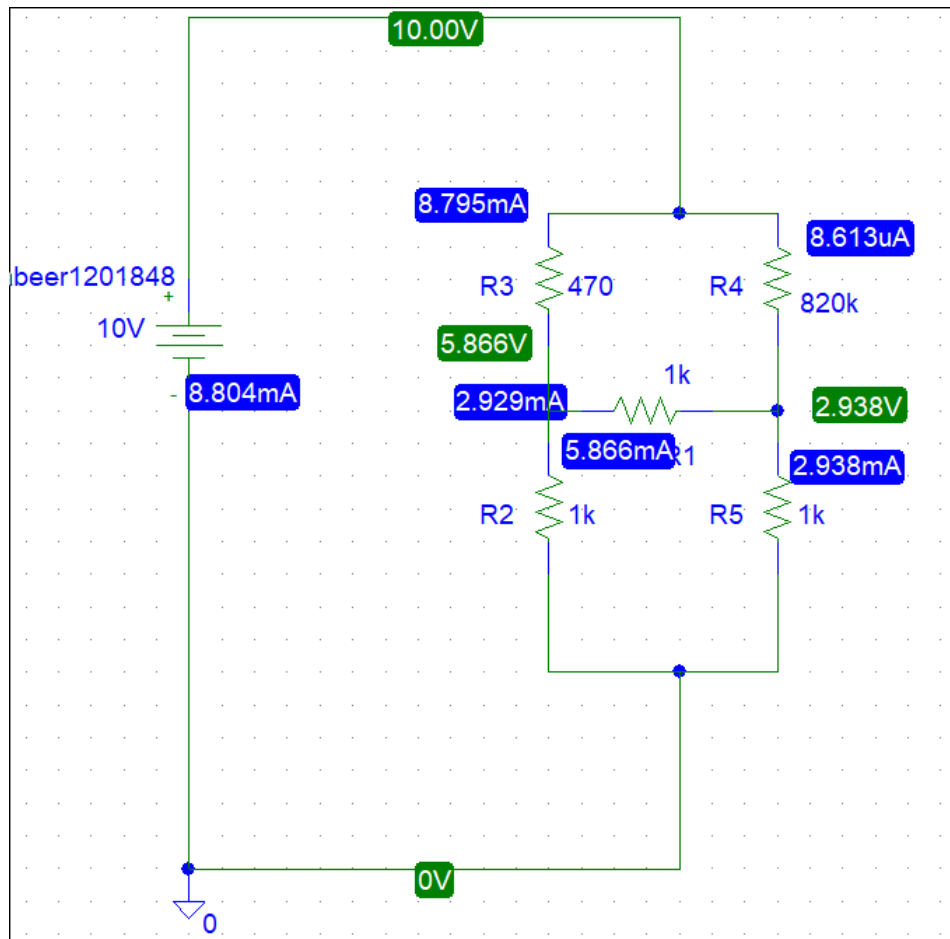


Figure 4.8

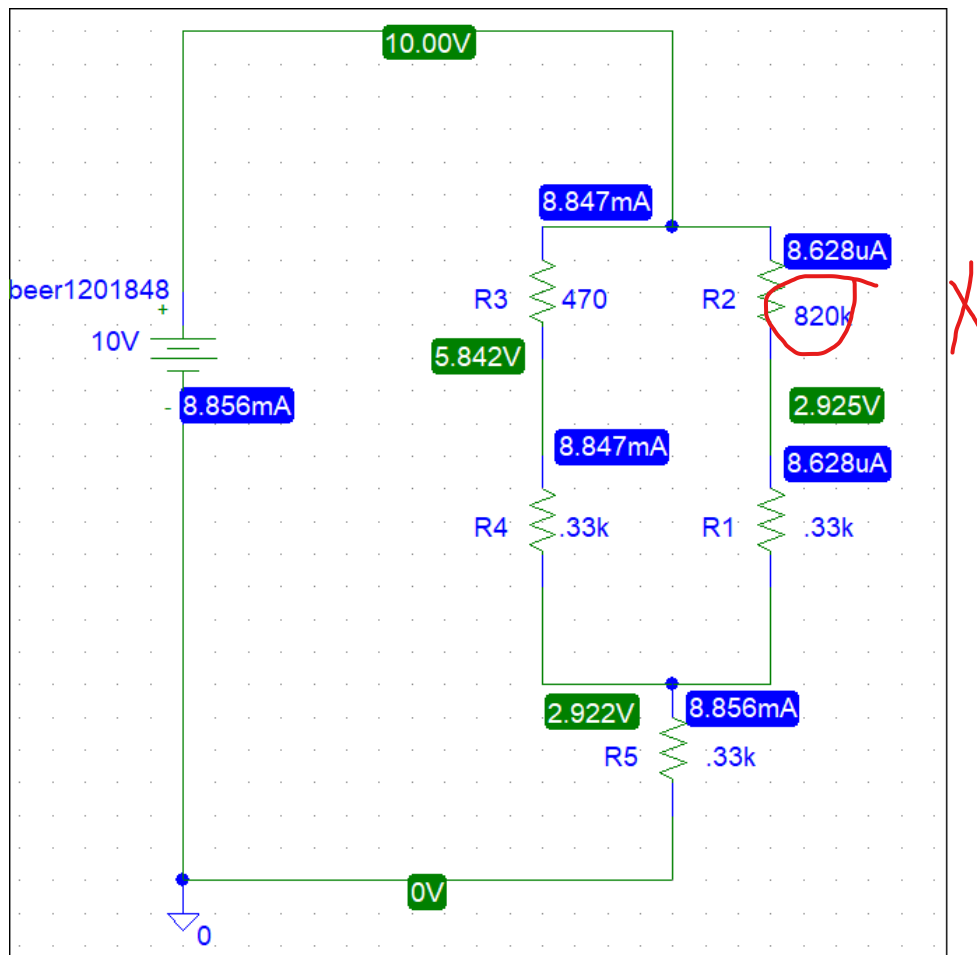


Figure 4.81

Part E: Reciprocity Theorem

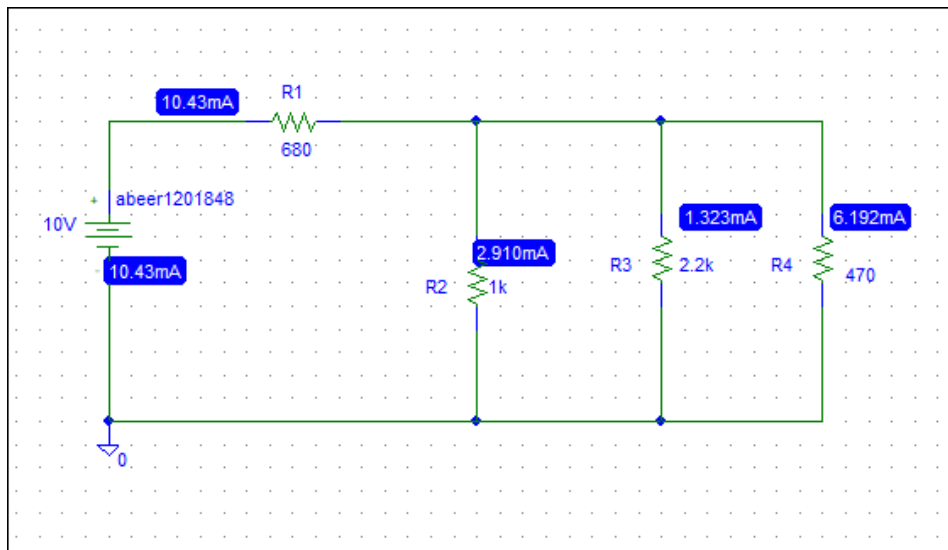


Figure 4.9

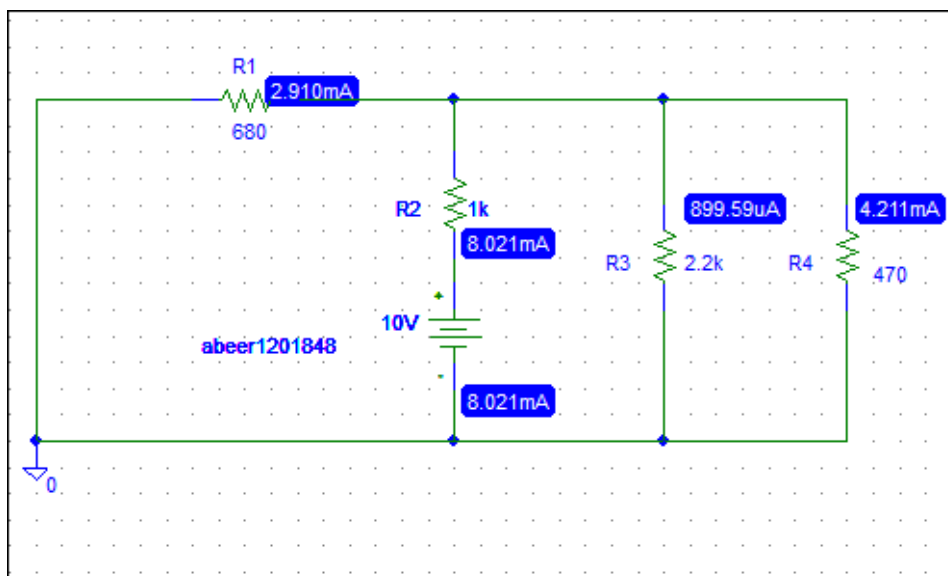


Figure 4.10

