**C:\Users\st11223\Desktop\MIT LOGO ETC\New MIT Logo.png **

**NEW ZEALAND MARITIME SCHOOL**

**NZ Diploma in Marine Electro-technology (NZ2894)**

**(STCW 1978 A-III/6, as amended in 2010)**

**Electro-Technical Officer, Year 2 Cadets, 2020.**

**Course Code**

942.573 – PR01.

**Course Title**

Marine Electro-technology Science, Electronics and Electrical Machines.

Practical Assessment.

**Format**

Written/Construction/Programming assignment including diagrams/software and marked Competent (C) or Not-Yet Competent (NYC). Weighting = 50%.

**Due Date**

To be submitted by email to [nick.cossar@manukau.ac.nz](mailto:nick.cossar@manukau.ac.nz) for the due date of 23/02/2020.

**Tutor**

Nick Cossar

[nick.cossar@manukau.ac.nz](mailto:nick.cossar@manukau.ac.nz)

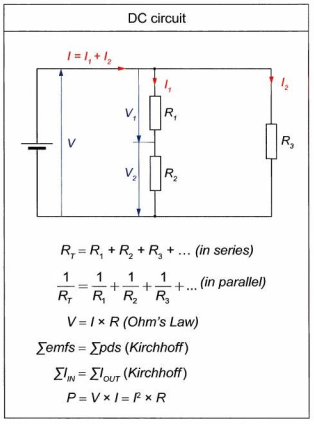
**Student Name:** Levi Dubbelman

**Student ID:** 190000929

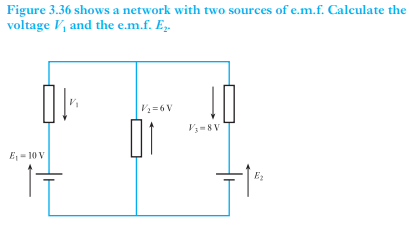
**Date:** 03/02/2020

Outcome 1: **Solve the following circuits and confirm your results using Circuitmaker software. Submit drawings and your Circuitmaker files.**

* DC circuit, Page 2, Hall, Practical Marine Knowledge 3rd Edition.



* DC Circuit, Example 3.15, Figure 3.36, Page 49, Hughes Electrical and Electronic Technology 10th Edition.

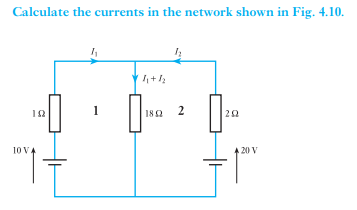


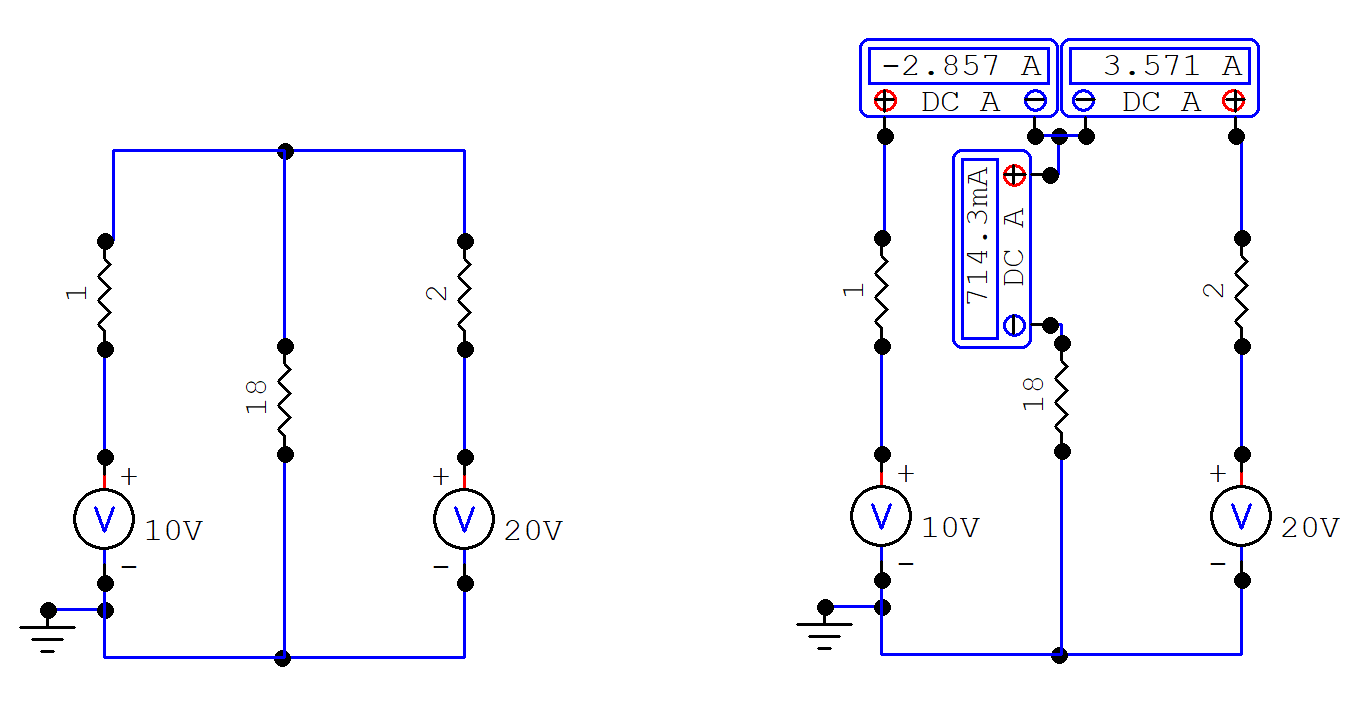
(Left Loop)

(Right Loop)

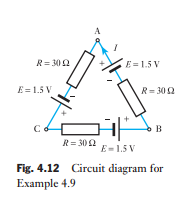
*\*Note: R3 is 4x larger than R2 and R1, which are the same value. In this file, they are 1k, 1k and 4k respectively.*

* DC Circuit, Example 4.7, Figure 4.10, Page 68, Hughes Electrical and Electronic Technology 10th Edition.

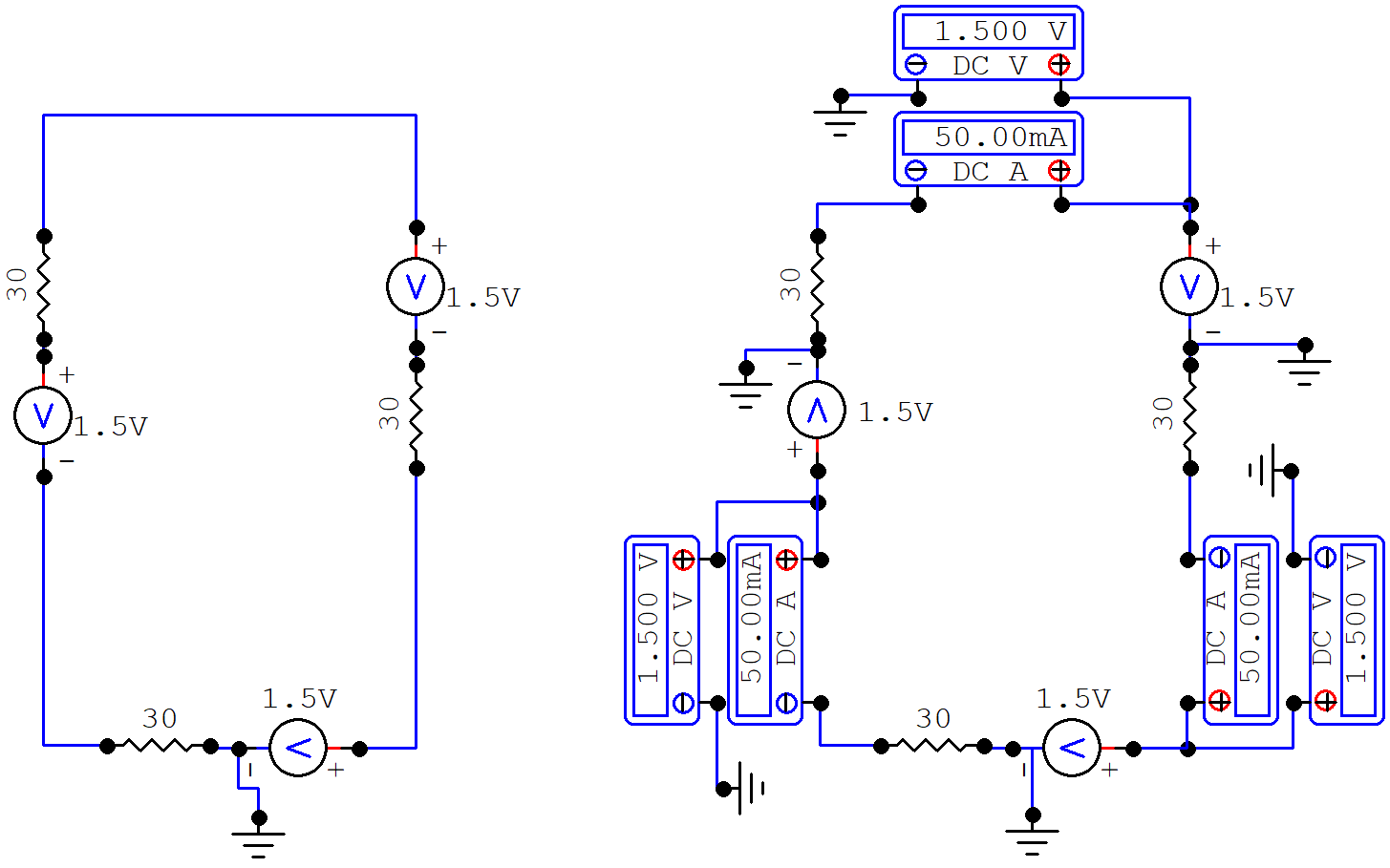




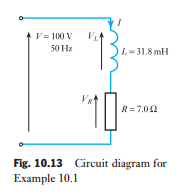
* DC Circuit, Example 4.9, Figure 4.12, Page 69, Hughes Electrical and Electronic Technology 10th Edition.

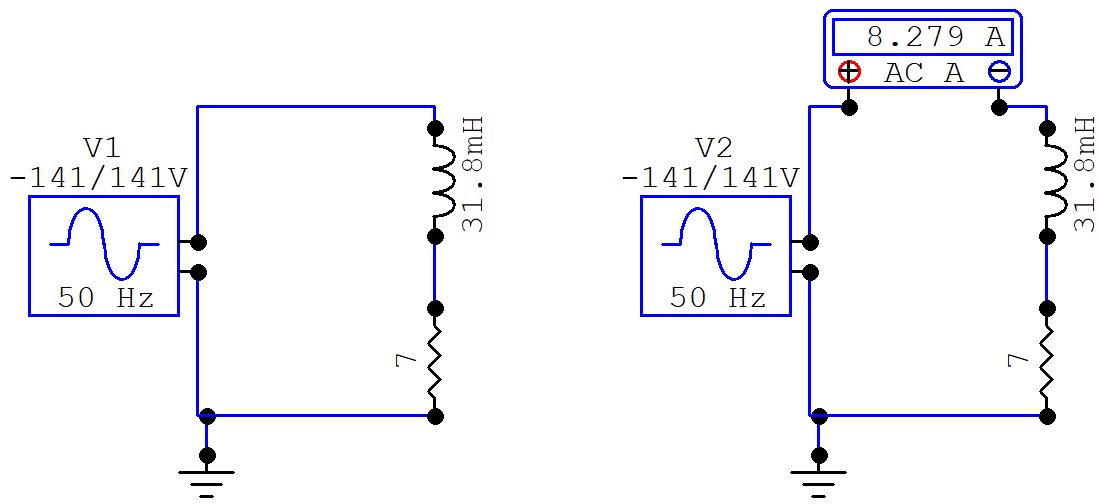


(i.e. no differential between points… you just connected three batteries in series)

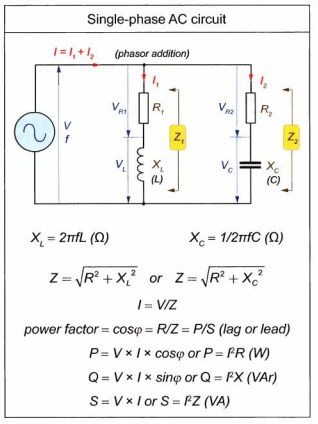


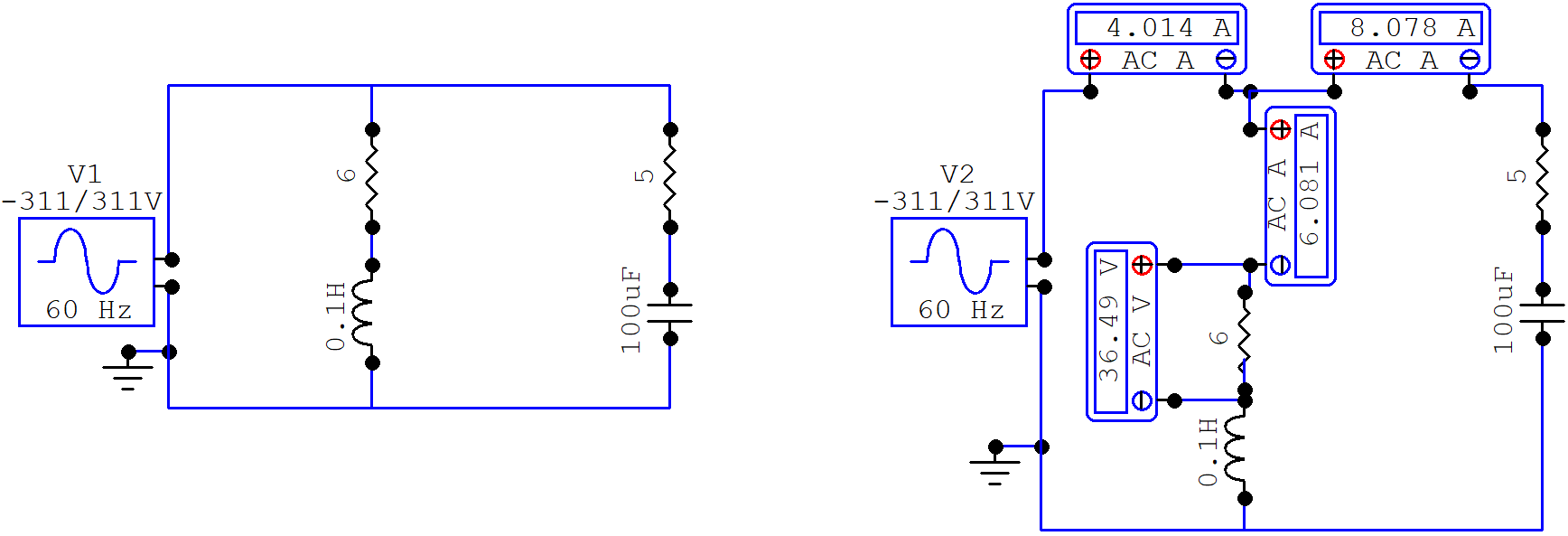
* AC Circuit Single Phase, Example 10.1, Figure 10.13, Page 231, Hughes Electrical and Electronic Technology 10th Edition.





* AC Circuit Single Phase, Page 3, Hall, Practical Marine Knowledge 3rd Edition.





Outcome 2: **Direct Online Motor Starter. Submit working drawings, photos of your work and Zelio files.**

* Build one Direct-Online starter for a three phase motor incorporating two remote start/stop stations and an emergency stop pushbutton. Test the circuit for operation and then modify it to incorporate one Schneider Electric Zelio relay controller. You will need to write a program, download it to the Zelio relay, and test the operation.

**Resources**

* + CANVAS.
  + Hall – Practical Marine Electrical Knowledge.
  + Hughes – Electrical and Electronic Technology.
  + Lloyds of London Rules and Regulations for the Classification of Ships July 2018.