**Chapter 6: Capacitors and Inductors**

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## 6.2 Capacitors

Capacitors and inductors are known as passive elements (store energy), whereas resistors are known as active elements (dissipate energy).

Resistors dissipate energy as heat. Capacitors store energy as voltage. Inductors store energy as current.

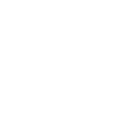
A capacitor consists of two conducting plates separated by an insulator.

– capacitance

Capacitance is the ratio of charge on one plate to the potential difference between the two plates.

– permittivity

Symbol of a capacitor:



A capacitor will be open circuited at DC.

## 6.3 Series and Parallel Capacitors

- series

- parallel

## 6.4 Inductors

An inductor consists of a coil of a conducting wire.

There are 3 types of loads, resistive, capacitive and inductive.



– permeability

An inductor will be open circuited at DC.

- series

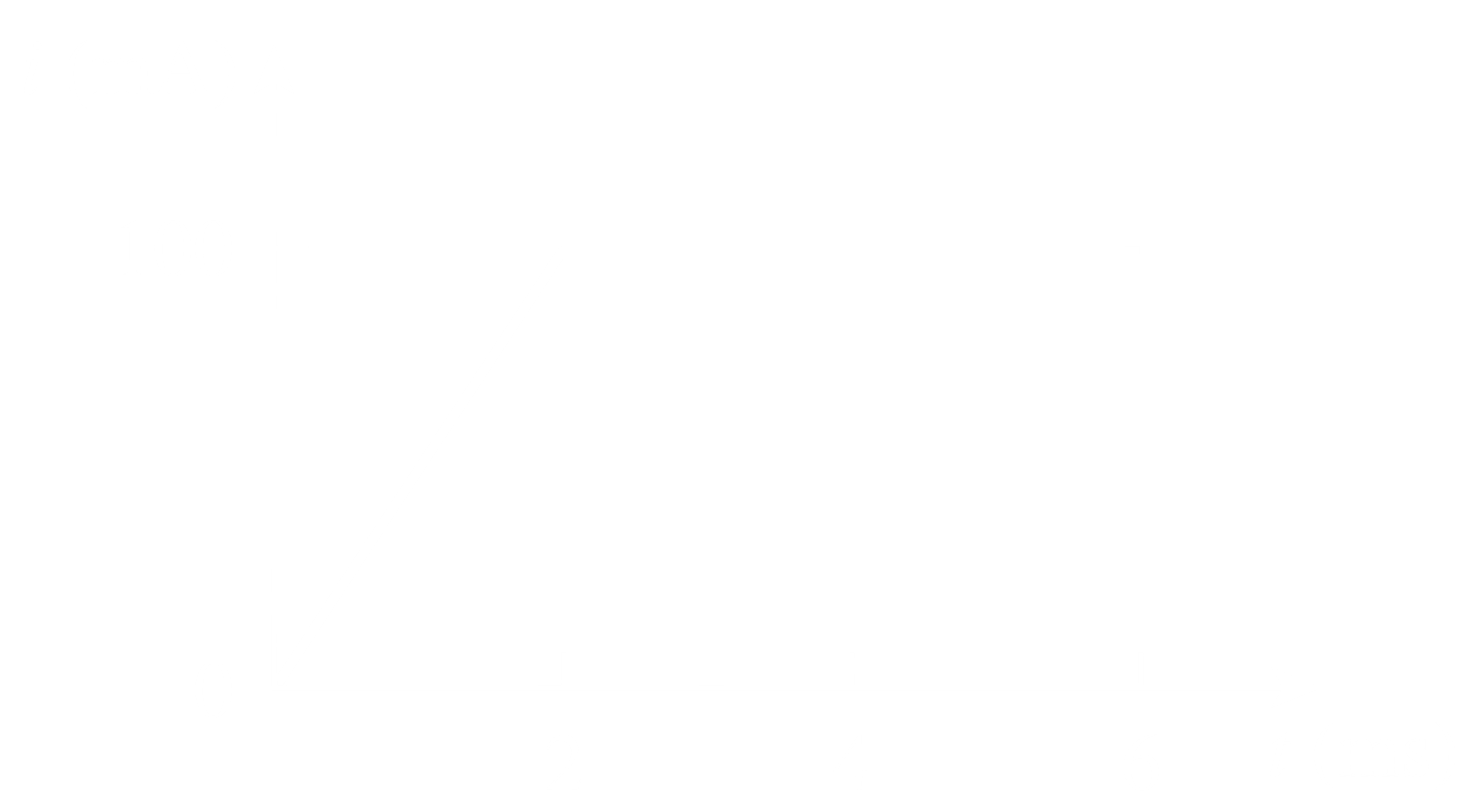
- parallel

Practice Problem 6.1

Practice Problem 6.2

Practice Problem 6.3

Practice Problem 6.4

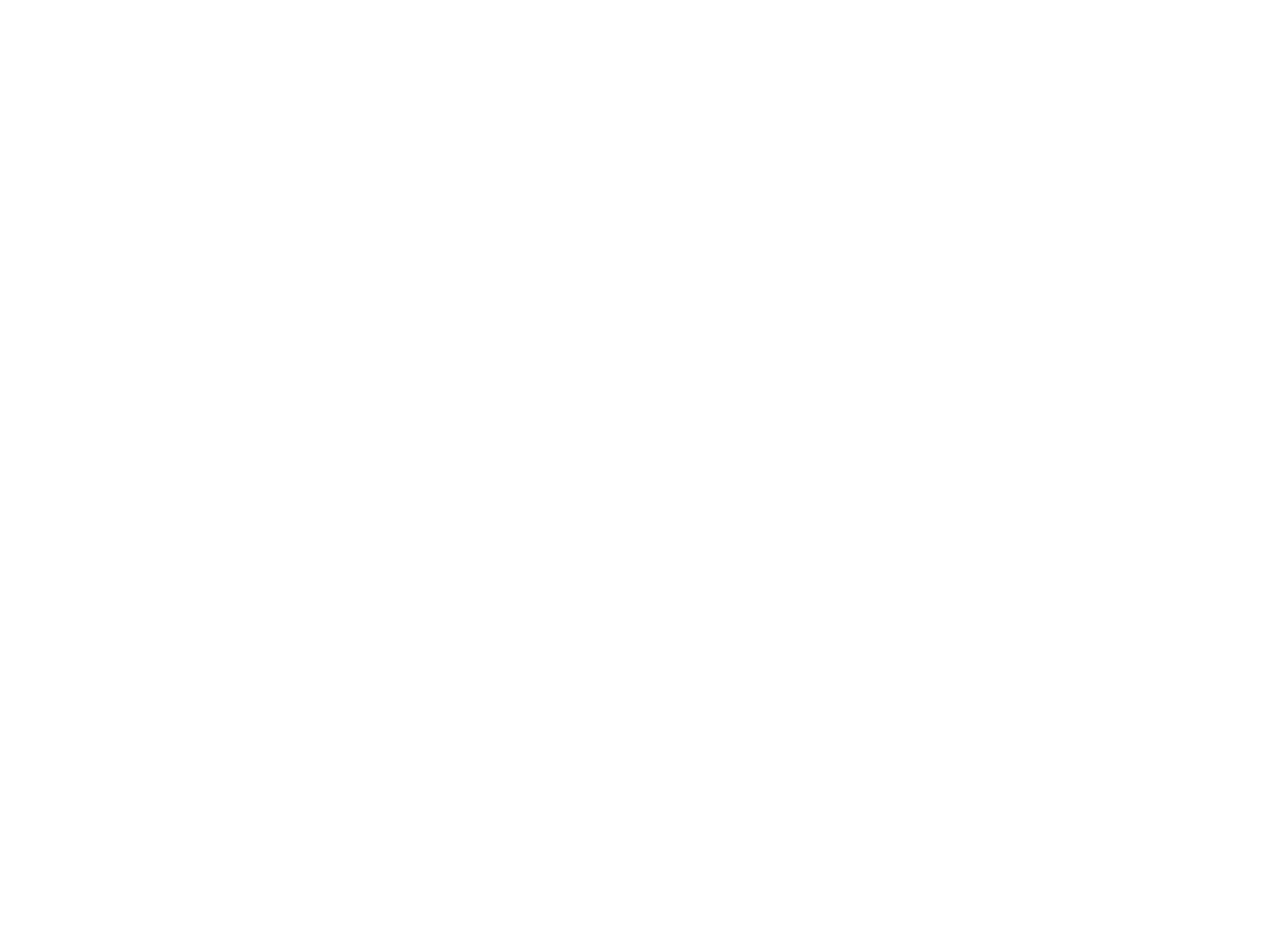


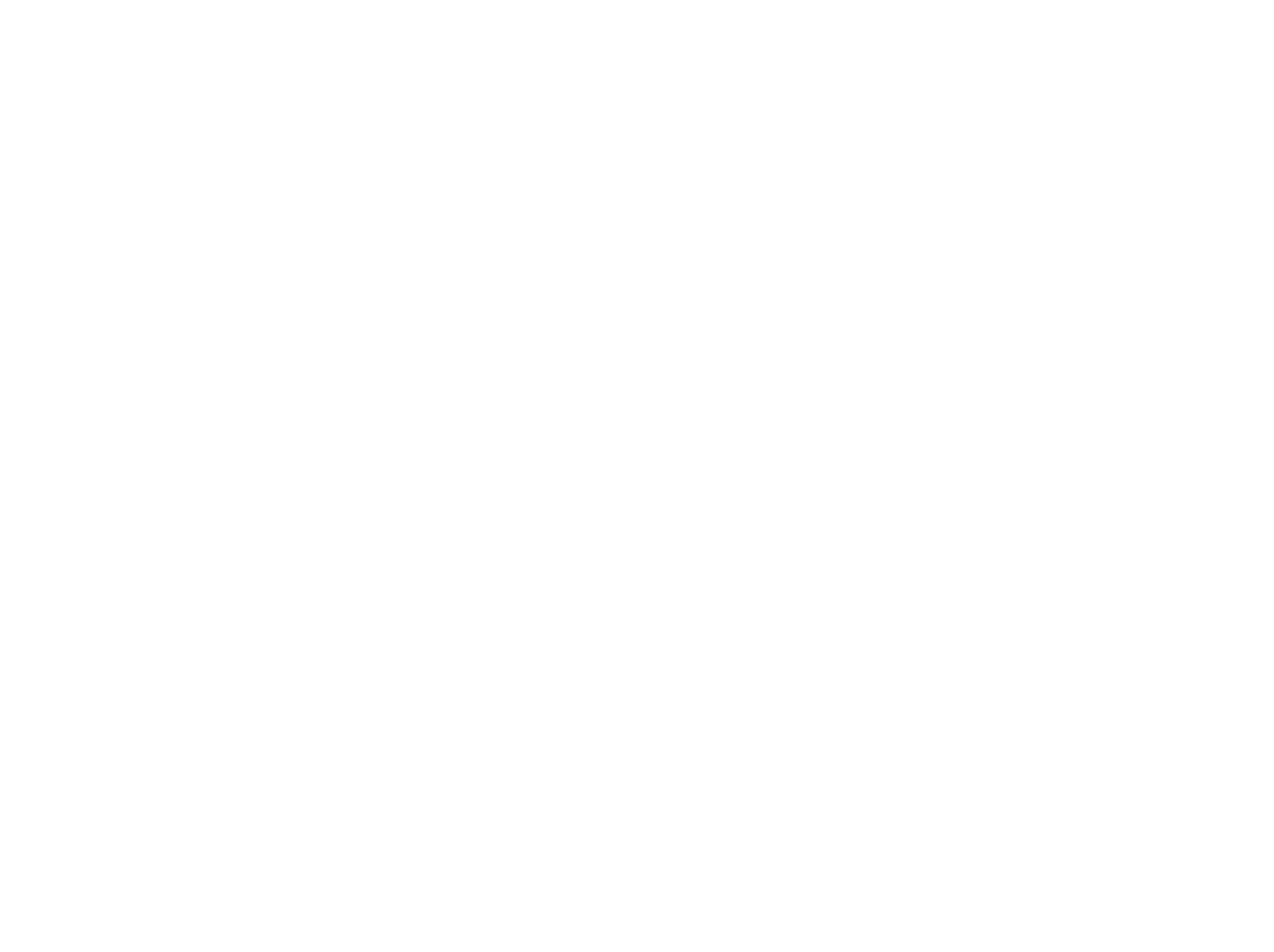
Let

Practice Problem 6.5

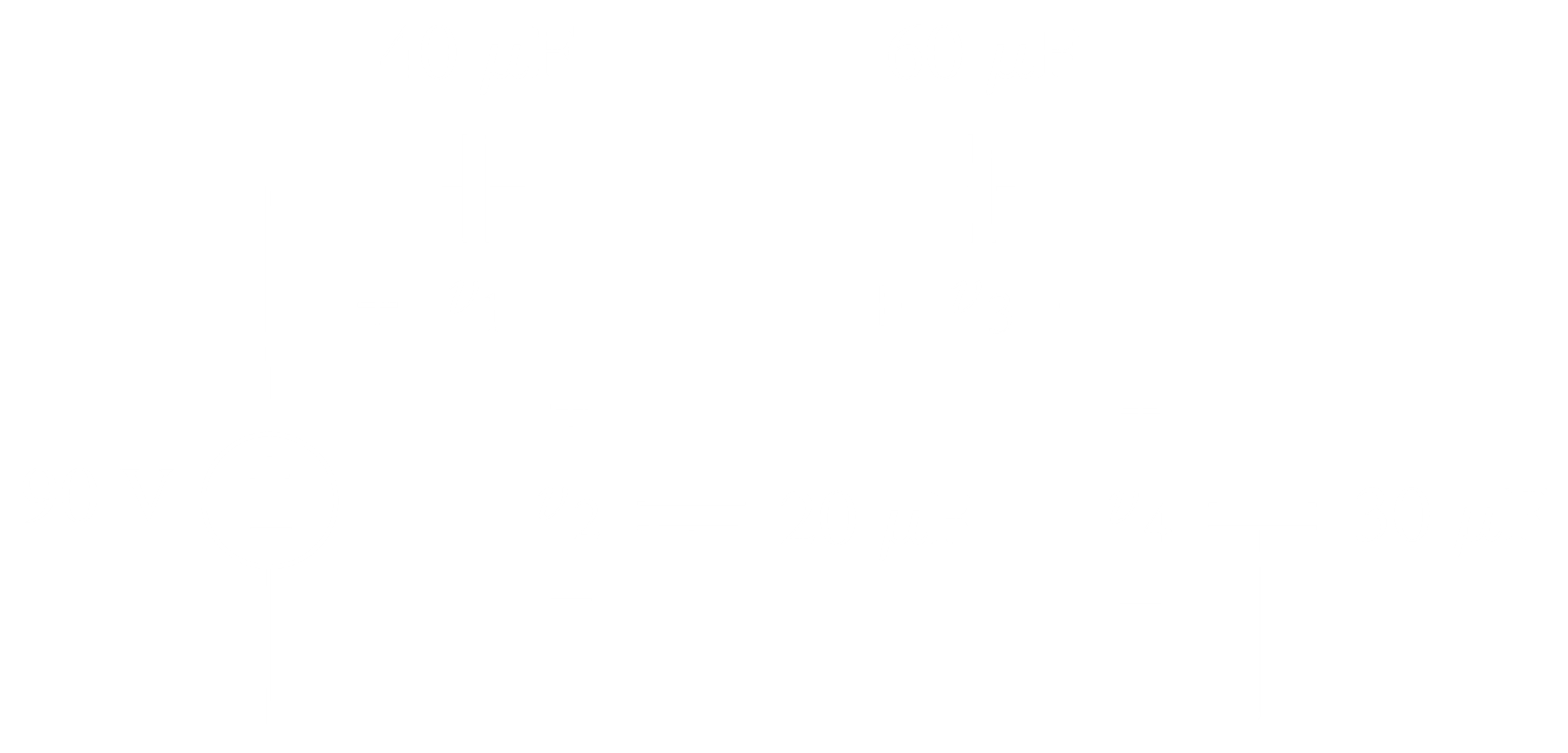
Capacitor Off – Open Circuit

Inductor Off – Short Circuit



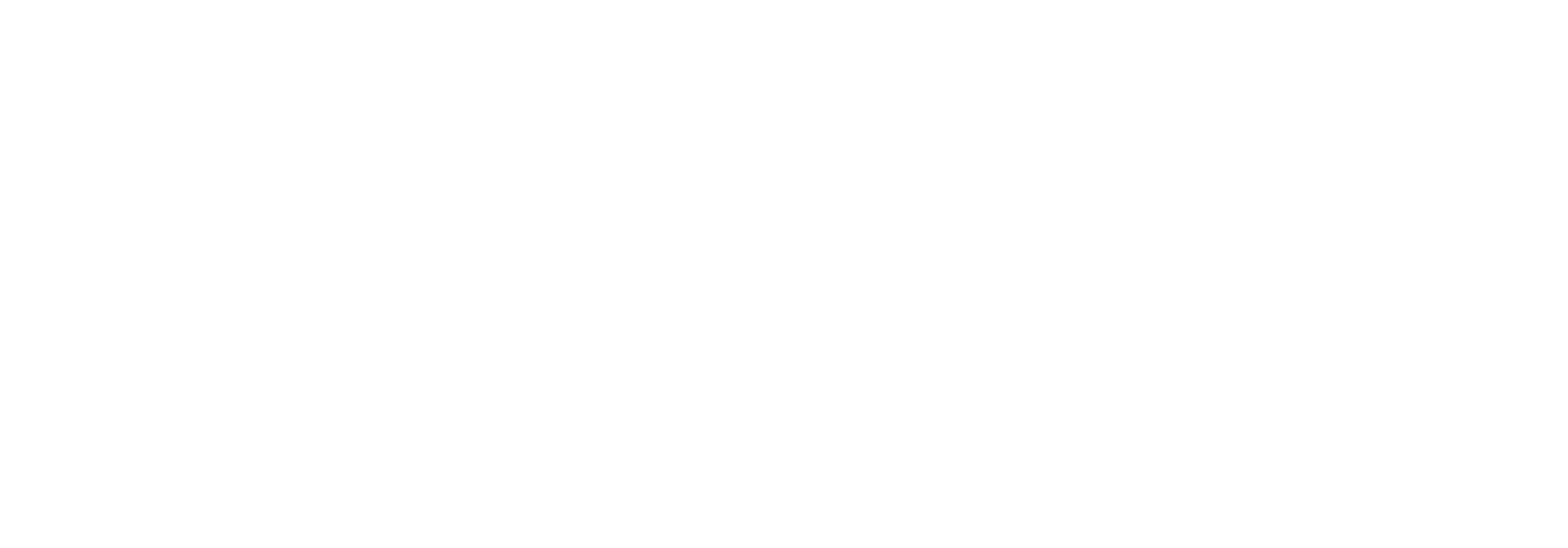


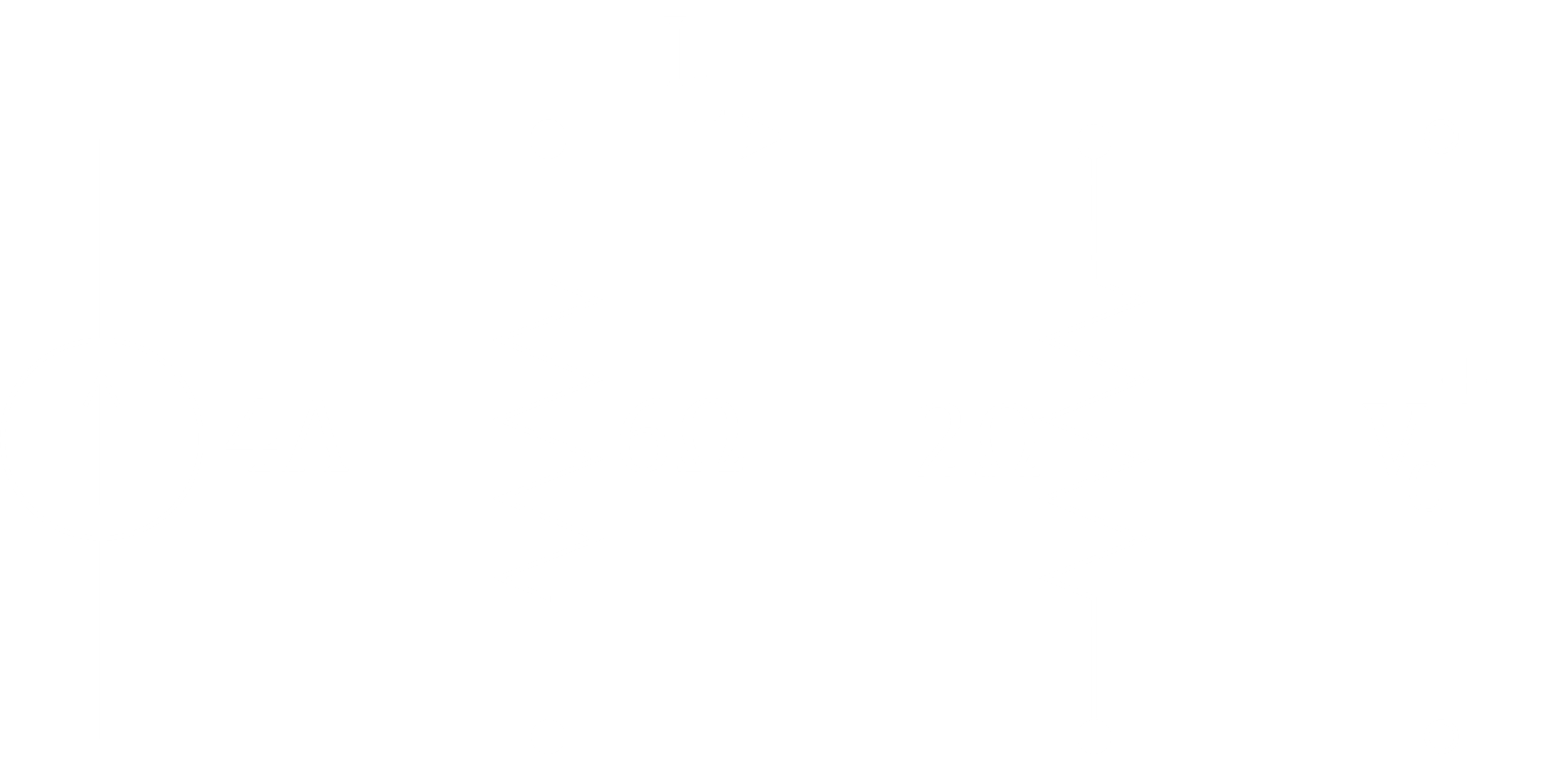
Practice Problem 6.7



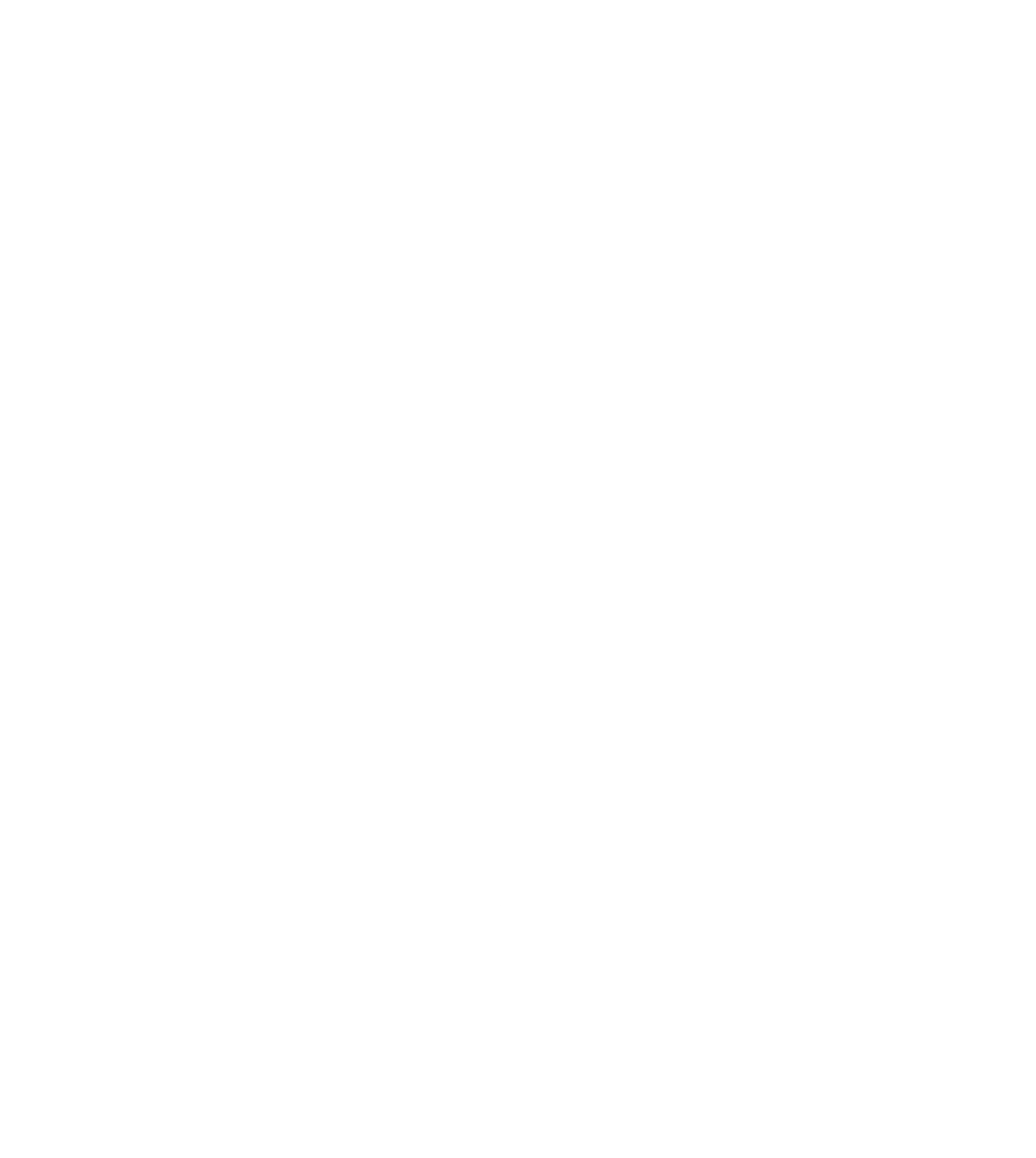
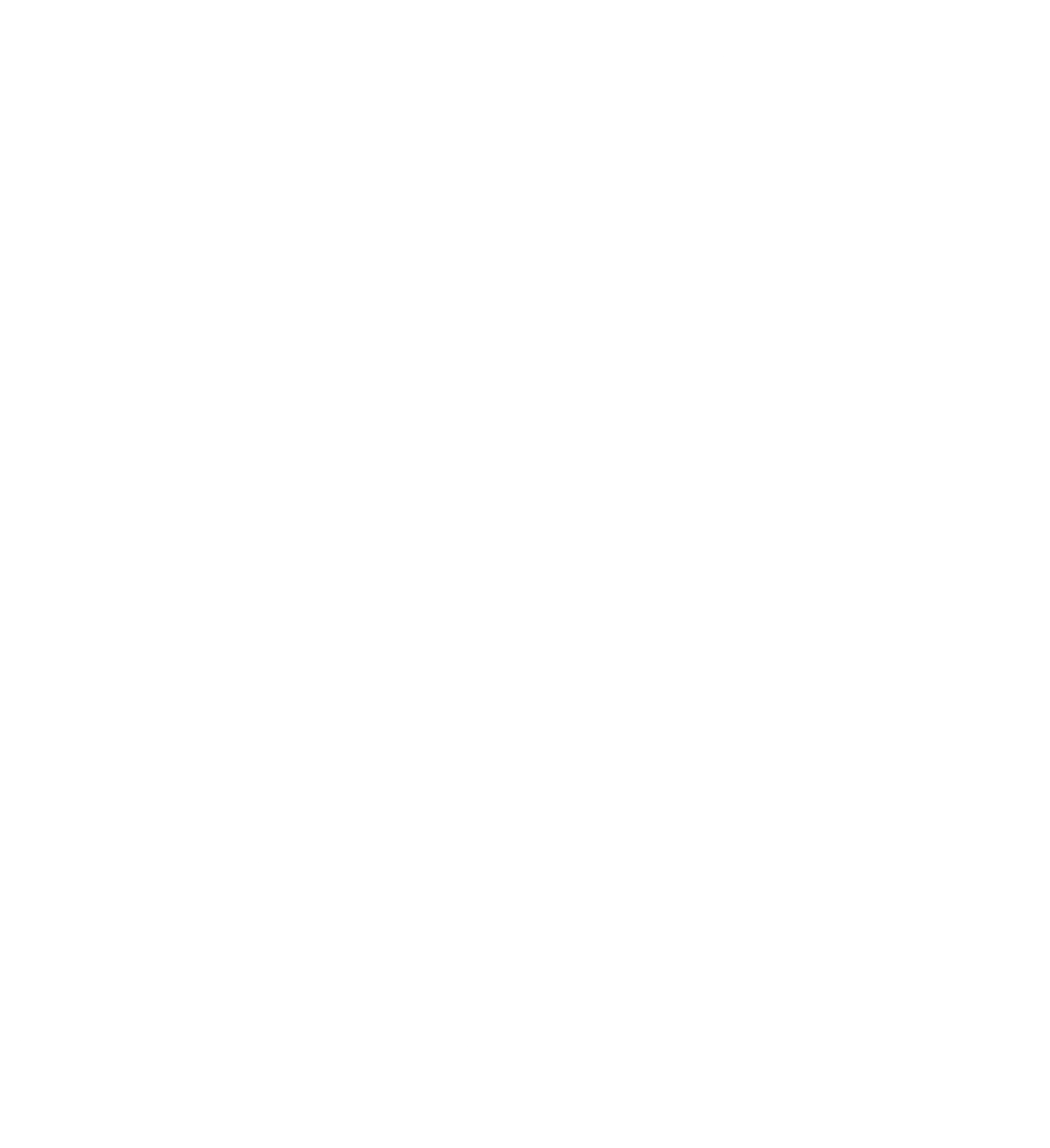
Note: Voltage Divider and Current Divider rules are reversed for capacitors.

Practice Problem 6.10





Exercise 6.28



Delta-Wye Formulas are reversed for capacitors.

Exercise 6.25

