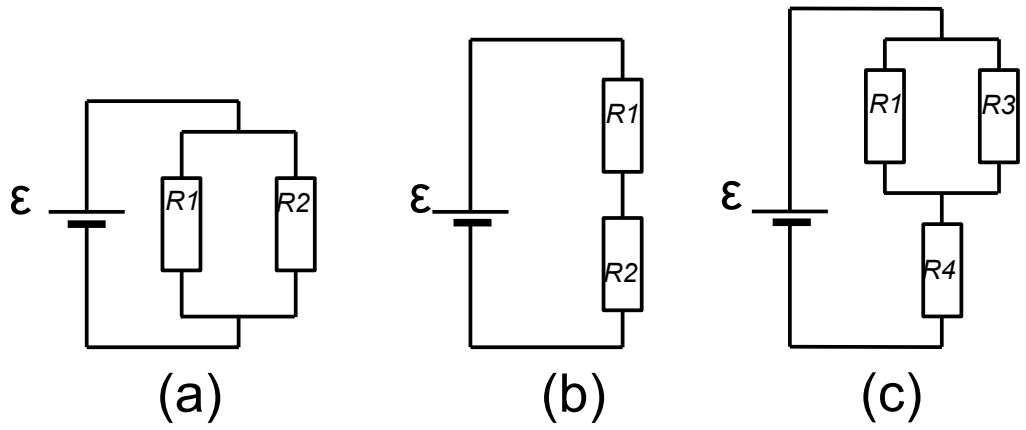
Electric Circuits,
Non-assessed problems Week 1

Q1) Consider the three circuits (a), (b), and (c) shown in the figure below.



(i) Calculate the equivalent resistance in each circuit if R1=10Ω, R2=20Ω, R3=15Ω and R4=5Ω and ε=10 V.

(ii) What is the dissipated electric power in each circuit?
(You may neglect the internal resistance of the power supply ε.)

Q2) Husband and wife disagree about how to light their Christmas tree with 20 identical bulbs, using a battery of 20V. The husband wishes to connect the bulbs in series, while the wife argues that the bulbs will be brighter if connected in parallel. Who is right and what is the difference in dissipated power between the two options.