

Question 1 [2]

For linear circuits what does the phrase "power balance" refer to?

Question 2 [2]

Write down the mathematical definition of voltage and express the value of 1 volt in alternative SI units.

Question 3 [2]

Write down the mathematical definition of current and express the value of 1 ampere in alternative SI units.

Question 4 [4]

The references for the voltage and current at the terminals of a circuit element are shown below:



The values are:- $v = -20$ V and $i = 5$ A.

- (a) Calculate the power at the terminals and state whether the power is being absorbed or delivered by the element.

- (b) Do the electrons gain or lose energy as they pass through the element?