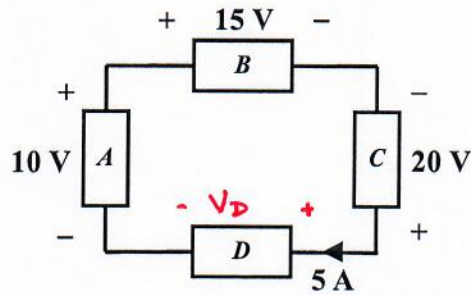


EE/EET 2240  
Homework Problem #004

For the circuit shown below:



- a. Does component *A* **absorb** power or **deliver** power? How do you know?

Component A does not satisfy the PSC.  
 $\therefore$  it delivers  $(10V)(5A) = 50W$

- b. Does component *B* **absorb** power or **deliver** power? How do you know?

Component B satisfies the PSC.  
 $\therefore$  it absorbs  $(15V)(5A) = 75W$

- c. Does component *C* **absorb** power or **deliver** power? How do you know?

Component C does not satisfy the PSC.  
 $\therefore$  it delivers  $(20V)(5A) = 100W$

- d. Does component *D* **absorb** power or **deliver** power? How do you know?

$V_D = 20V - 15V + 10V = 15V$   
 $V_D > 0 \Rightarrow$  Component D satisfies the PSC.  
 $\therefore$  it absorbs  $(15V)(5A) = 75W$

- e. Show that power is conserved.

$$\text{Total power delivered} = 50W + 100W = 150W$$

$$\text{Total power absorbed} = 75W + 75W = 150W$$

$\therefore$  Total power delivered = Total power absorbed  
 $\Rightarrow$  power is conserved.