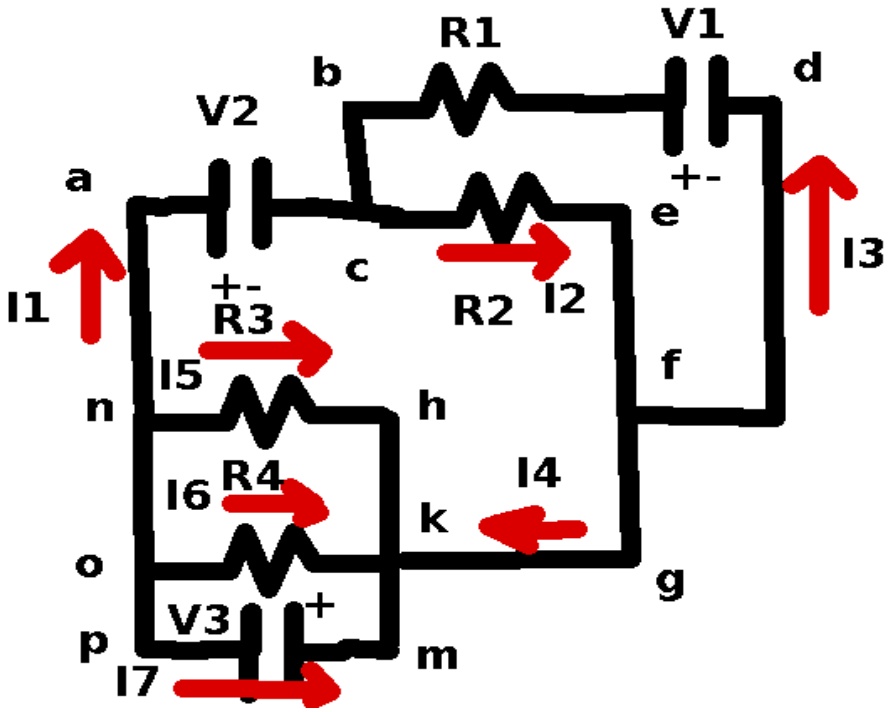
Physics 220: Unquiz 04 r1



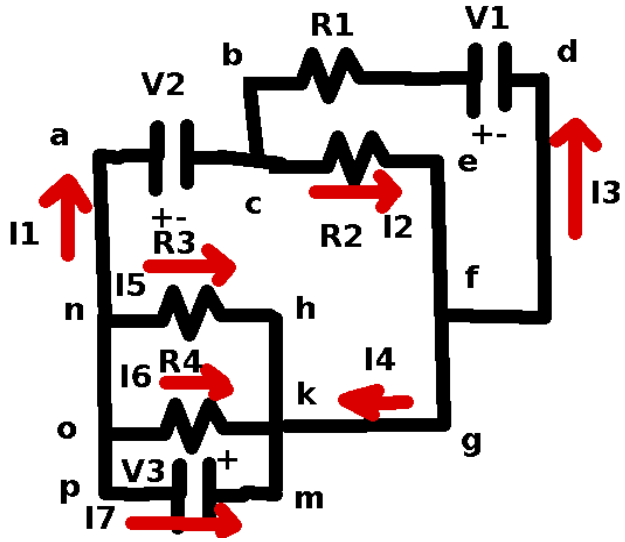
Provide the Kirchoff law results for the following:

(bcefdb):
(acefgkhna);
(nhkon):
(okmpo):
@c:
@k:
@f:

If R1=1,R2=2,R3=3,R4=4,V1=10,V2=20,V3=30: the following currents result:
I1=-85,I2=-25,I3=60,I4=-85,I5=-10,I6=-7.5,I7=102.5

Calculate the total power radiated by the circuit.

What is the interpretation of current I5?



(bcefdb) : -I2R2+V1-I3R1=0
(acefgkhna): -V2-I2R2+I5R3=0
(nhkon): -I5R3+I6R4=0
(okmpo): -I6R4 -V3=0
@c: I1-I2+I3=0
@k: I5+I6+I7+I4=0
@f: I2-I3-I4=0
If R1=1,R2=2,R3=3,R4=4,V1=10,V2=20,V3=30:

At the second linear equation solver link: enter:
-I2*2+10-I3*1=0
-20-I2*2+I5*3=0
-I5*3+I6*4=0
-I6*4-30=0
I1-I2+I3=0
I5+I6+I7+I4=0
I2-I3-I4=0
Obtain: I1=-85,I2=-25,I3=60,I4=-85,I5=-10,I6=-7.5,I7=102.5

What is the total power radiated by the circuit?

$$P=I_3^2R1+I_2^2R2+I_5^2R3+I_6^2R4=60^2*1+25^2*2+10^2*3+7.5^2*4$$

$$P=3600+1250+300+225=5375\,W$$

What is the interpretation of current I5?
It is in the direction opposite to that indicated by the arrow of I5 in the diagram.