Norton's theorem

نظرية نورتن

B –Rationale مبررات الوحدة

- It is very important to study Norton's theorem.
- Also to study how apply the three step to the save theorem .

C – Central الفكرة المركزية Idea

- Definition Norton's theorem .
- How we find the current at each resistance in the net work by the above theorem .

D- Aim of lecture

To let the student be able to identify the analyses net work by using Norton's theorem.

Pretest ألاختبار القبلي

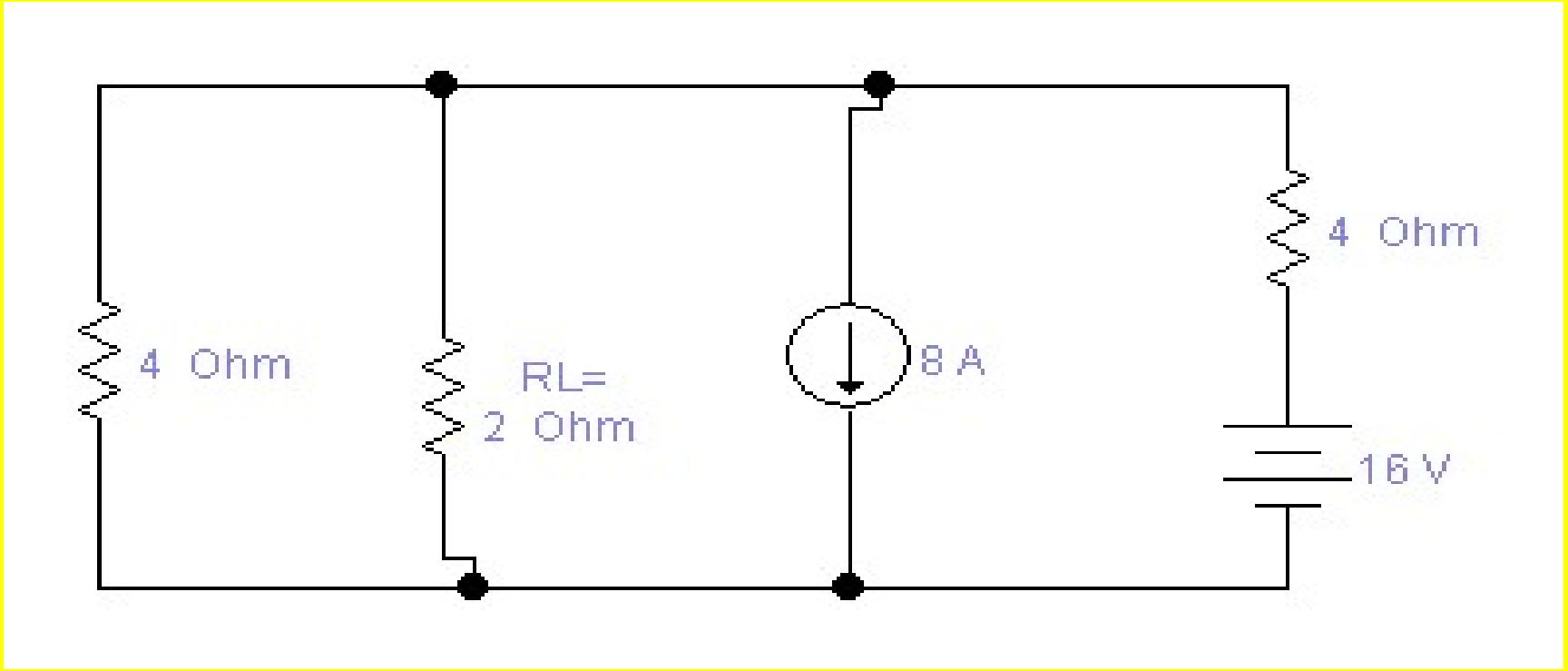
Define : short circuit , Open circuit

solution

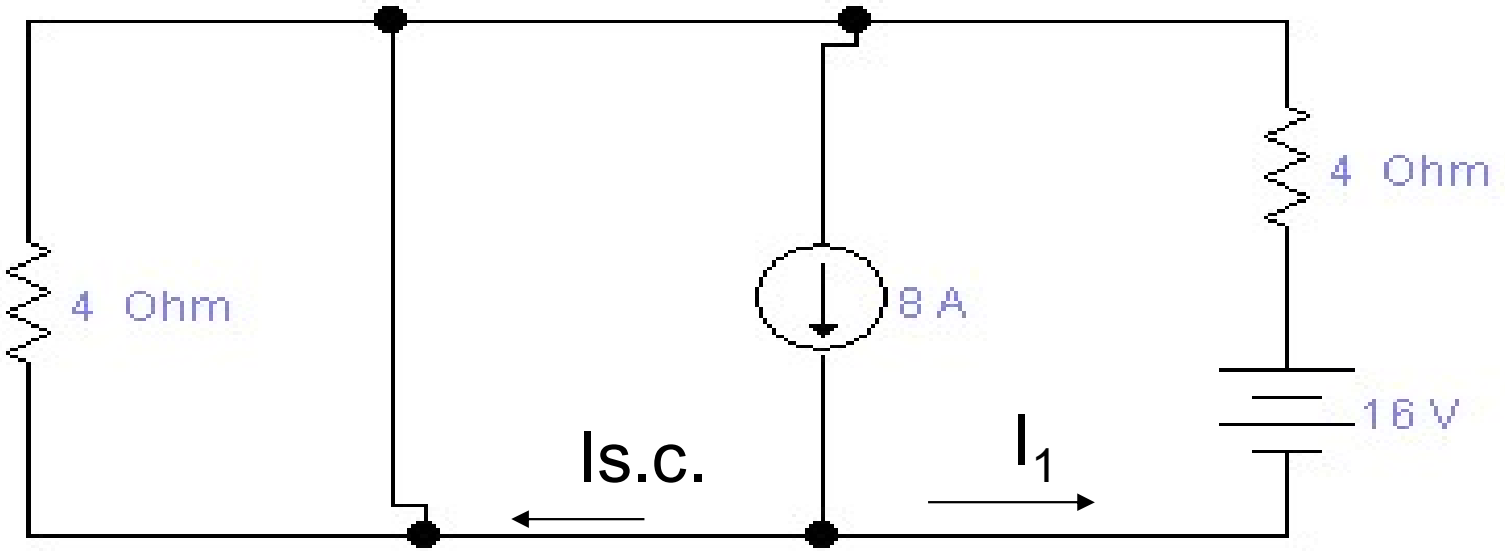
Short circuit : هي دائرة القصر التي يمر فيها جميع التيارات لنفس الدائرة الكهربائية لعدم وجود مقاومة فيها أي أن قيمة مقاومتها تكون صفرا .

Open circuit هي الدائرة المفتوحة التي تكون مقاومتها مالا نهاية وقيمة التيار المار فيها يكون صفرا .

Ex. :- Find (I_L) for the cct shown



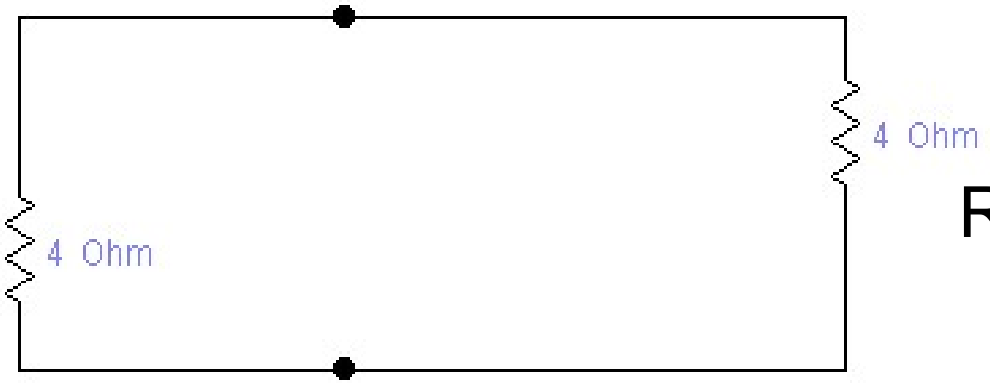
Solution; 1- To find $I_{s.c}$



I_1=16/4 =4A 8-I_1- $I_{s.c}$ =o (K.c.L)

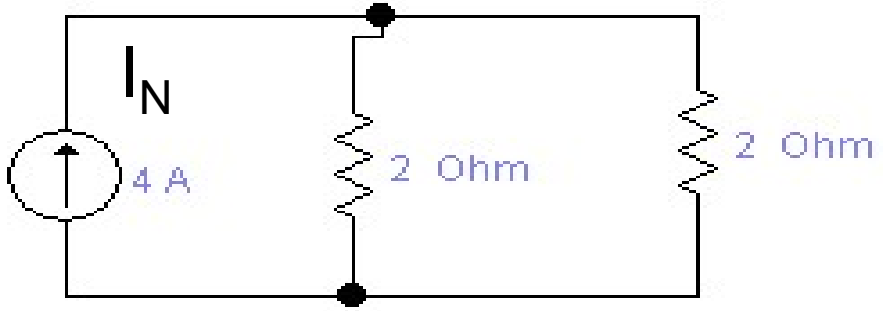
then; $I_{s.c.}$=4A = I_N

2- TO find R_N :



$R_N=(4x4)/ 8= 2Ω$

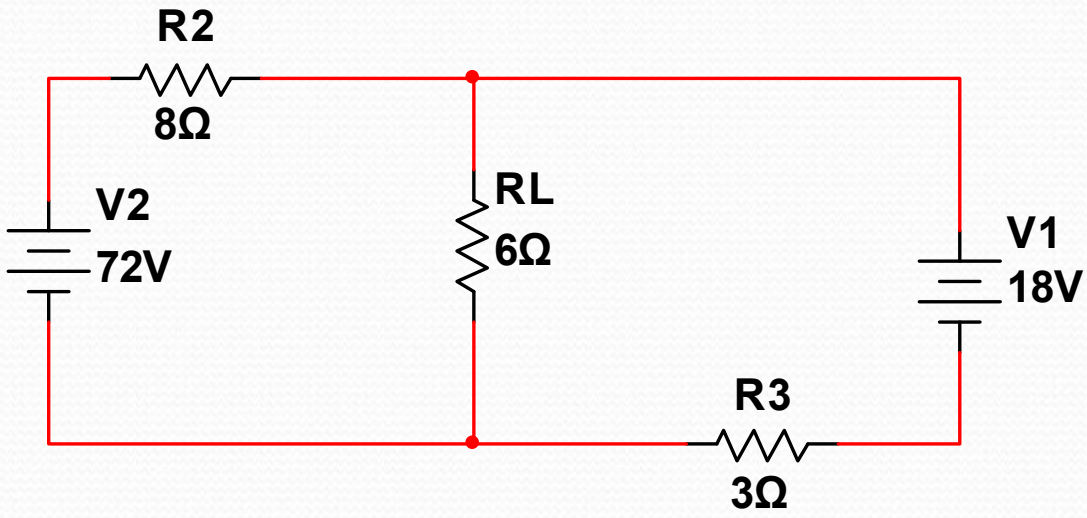
3- Drawing Norton's equivalent and calculate I_N



$I_N=(4x2)/(2+2)=2A$

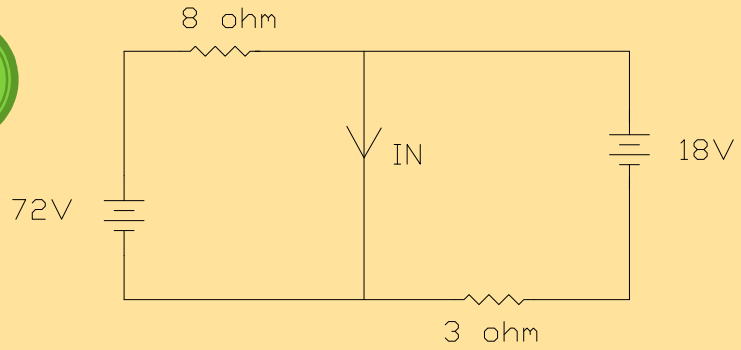
Posttest ألاختبار ألبعدي

Home work: For the cct. Shown find ($I_{Lat6\Omega}$) using Norton's theorem



Solution

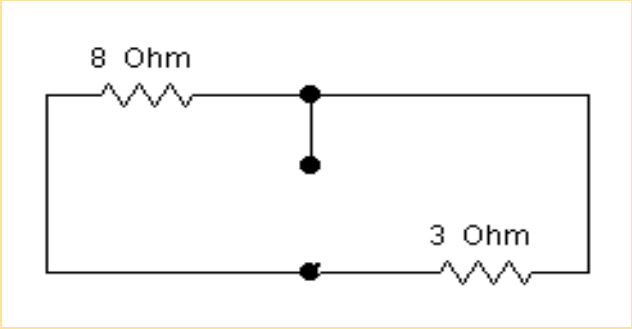
1



$I_{sh}=I_1+I_2$, $I_1=72/8=9A$

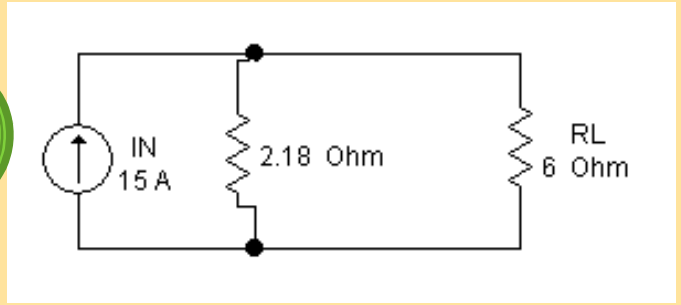
$I_2=18/3=6A$:. $I_{sh}=15A$

2



RN=3x8/11=24/11=2.18Ω

3



IL=(15x2.18)/(2.18+6)=4A