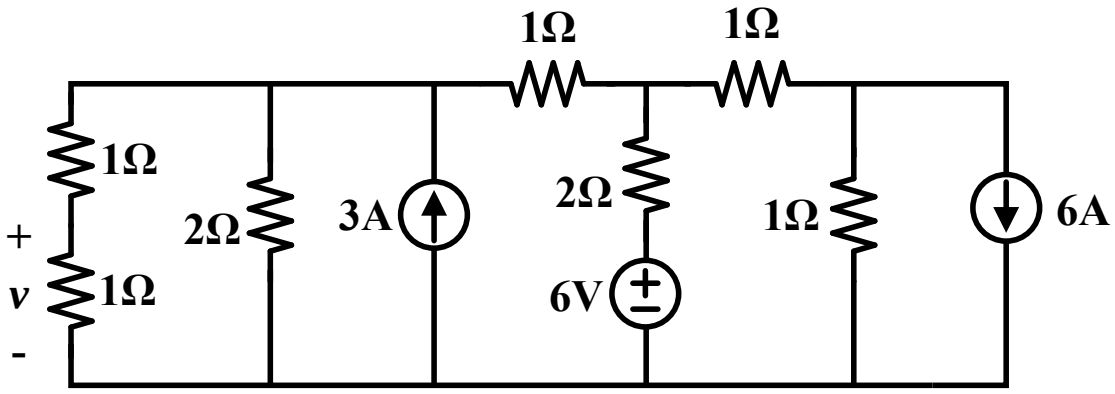
電路學(EE2210)第三次隨堂考

2015年3月25日
時間：10 分鐘
Close Book

學號：_____

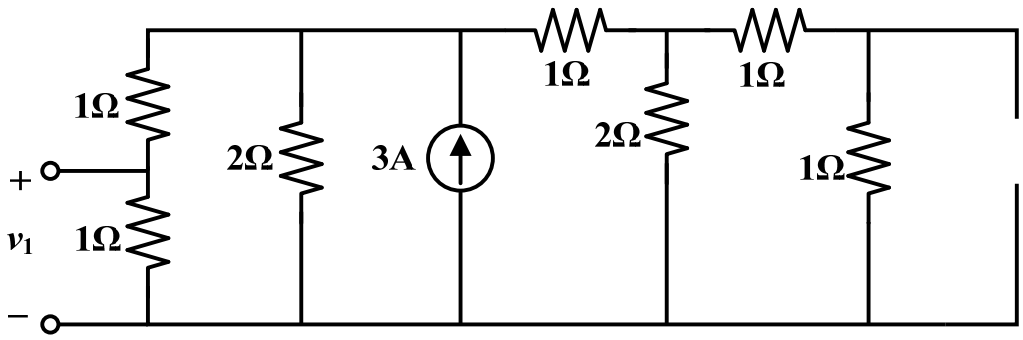
姓名：_____

Find the voltage *v* of the following network by superposition.



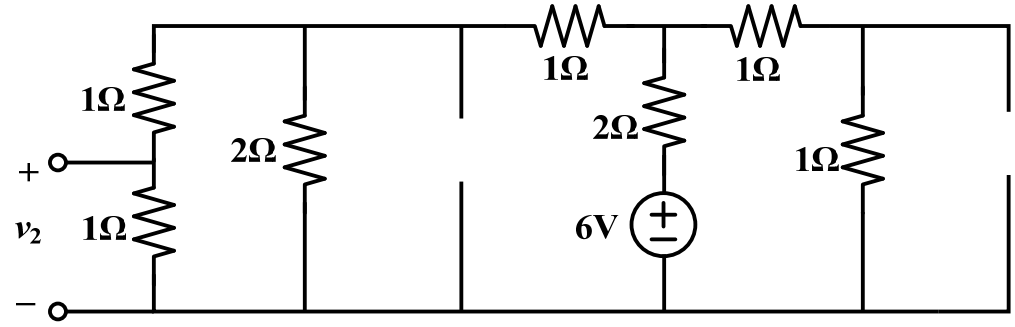
Solutions:

(i) With the action of the **3A** current source only, the circuit reduced to the following:



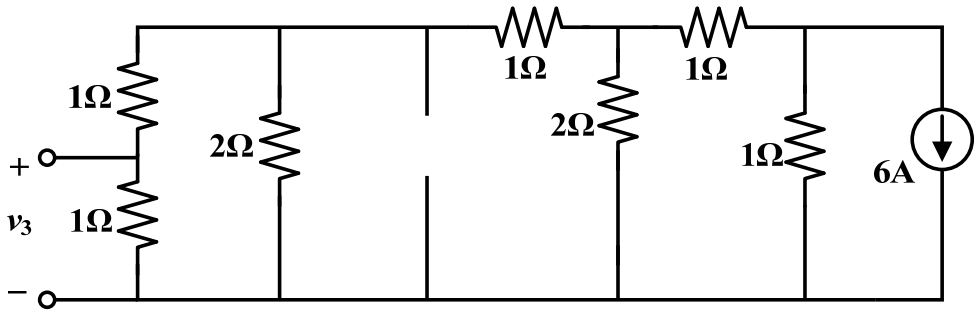
The v_{3A} can be found as $v_{3A} = 3 \times \frac{2}{1+2} \times \frac{1}{2} \times 1 = 1\text{V}$

(ii) With the action of the **6V** voltage source only, the circuit reduced to the following:



The v_{6V} can be found as $v_{6V} = 6 \times \frac{1}{1+2} \times \frac{1}{2} \times \frac{1}{2} \times 1 = \frac{1}{2}\text{V}$

(iii) With the action of the **6A** current source only, the circuit reduced to the following:



The v_{6A} can be found as $v_{6A} = (-6) \times \frac{1}{1+2} \times \frac{1}{2} \times \frac{1}{2} \times 1 = \left(-\frac{1}{2}\right)\text{V}$

By using superposition, the voltage v is simply the sum of above three results.

$$\Rightarrow v = v_{3A} + v_{6V} + v_{6A} = 1\text{V}$$

v = _____.