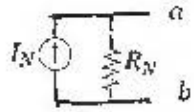
Find the Norton equivalent model of this circuit, as seen between a and b.



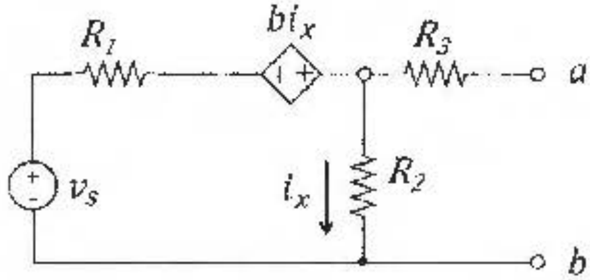
R1 = 2 ohm

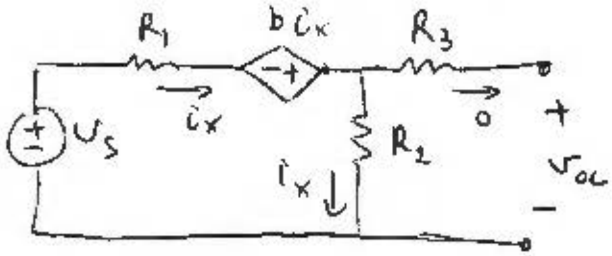
R2 = 4 ohm

R3 = 4 ohm

vs = 12 V

b = 2 A/V



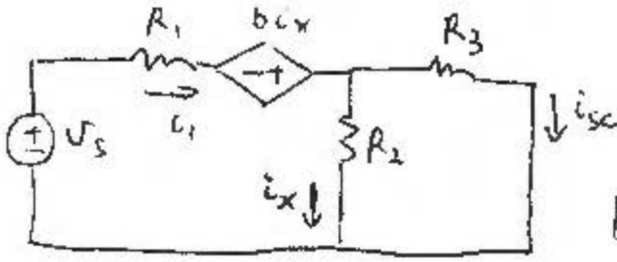


KVL: $v_s - R_1 i_x + b\, i_x - R_2 i_x = 0$

$12 - \cancel{2 i_x} + \cancel{2 i_x} - 4 i_x = 0$

$i_x = 3A \Rightarrow v_{oc} = R_2 i_x$

$= 12\,V$



$i_x = \frac{R_3}{R_2 + R_3}\, i_1 = \frac{4}{8}\, i_1 \Rightarrow i_x = \frac{i_1}{2}$

KVL: $v_s - R_1 i_1 + b\, i_x - R_2 i_x = 0$

$12 - 2 \cdot 2 \cdot i_x + 2 \cdot i_x - 4 i_x = 0$

$6 i_x = 12 \Rightarrow i_x = 2\,A$

$i_{sc} = i_1 - i_x = 2\,A$

$v_{oc} = 12V$

$i_{sc} = 2A$

$\Rightarrow \boxed{I_N = 2A}$

$R_N = \frac{v_{oc}}{i_{sc}} = 6\,\Omega \Rightarrow \boxed{R_N = 6\Omega}$