Use source transformations to find the current i_x.

Va = 12 V

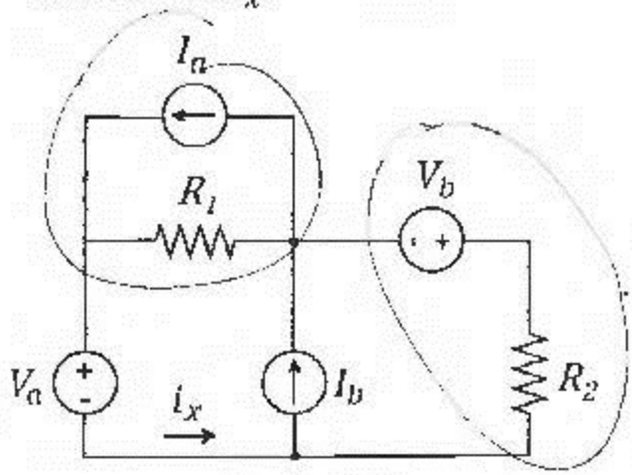
Vb = 6 V

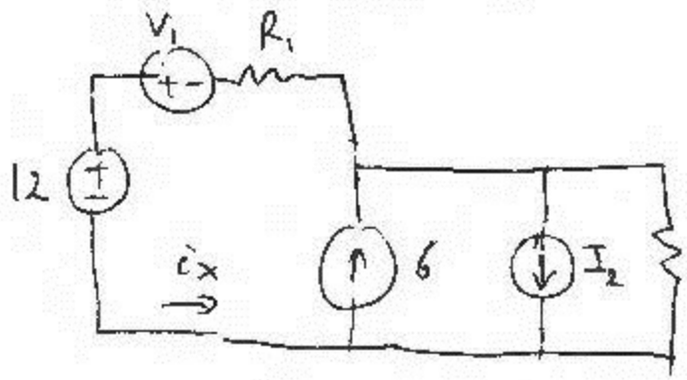
Ia = 4 A

Ib = 6 A

R1 = 3 ohm

R2 = 3 ohm

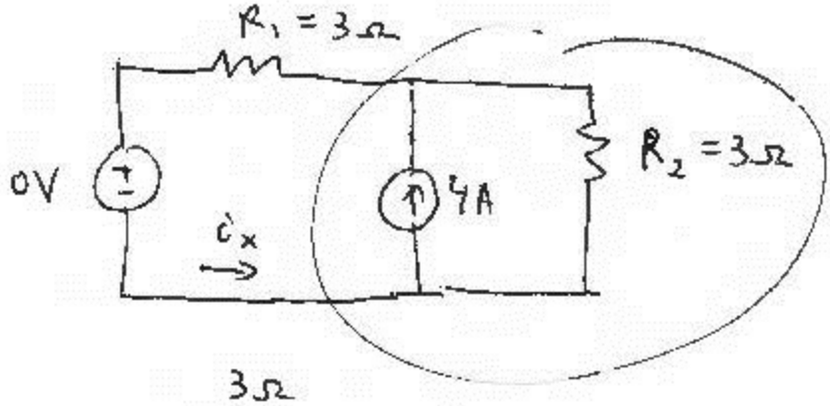


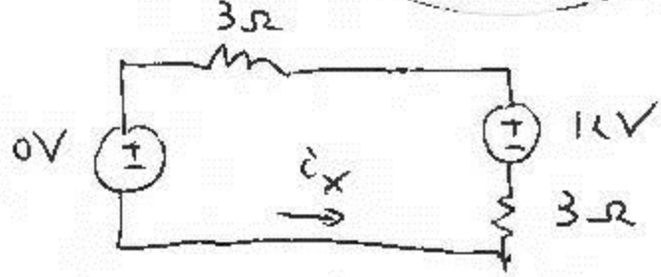


$V_1 = I_a \cdot R_1 = 4 \cdot 3 = 12V$

$I_2 = \frac{V_b}{R_2} = \frac{6}{3} = 2A$

R_2





$i_x = \frac{12V}{6\Omega} = 2A$

$\boxed{i_x = 2A}$