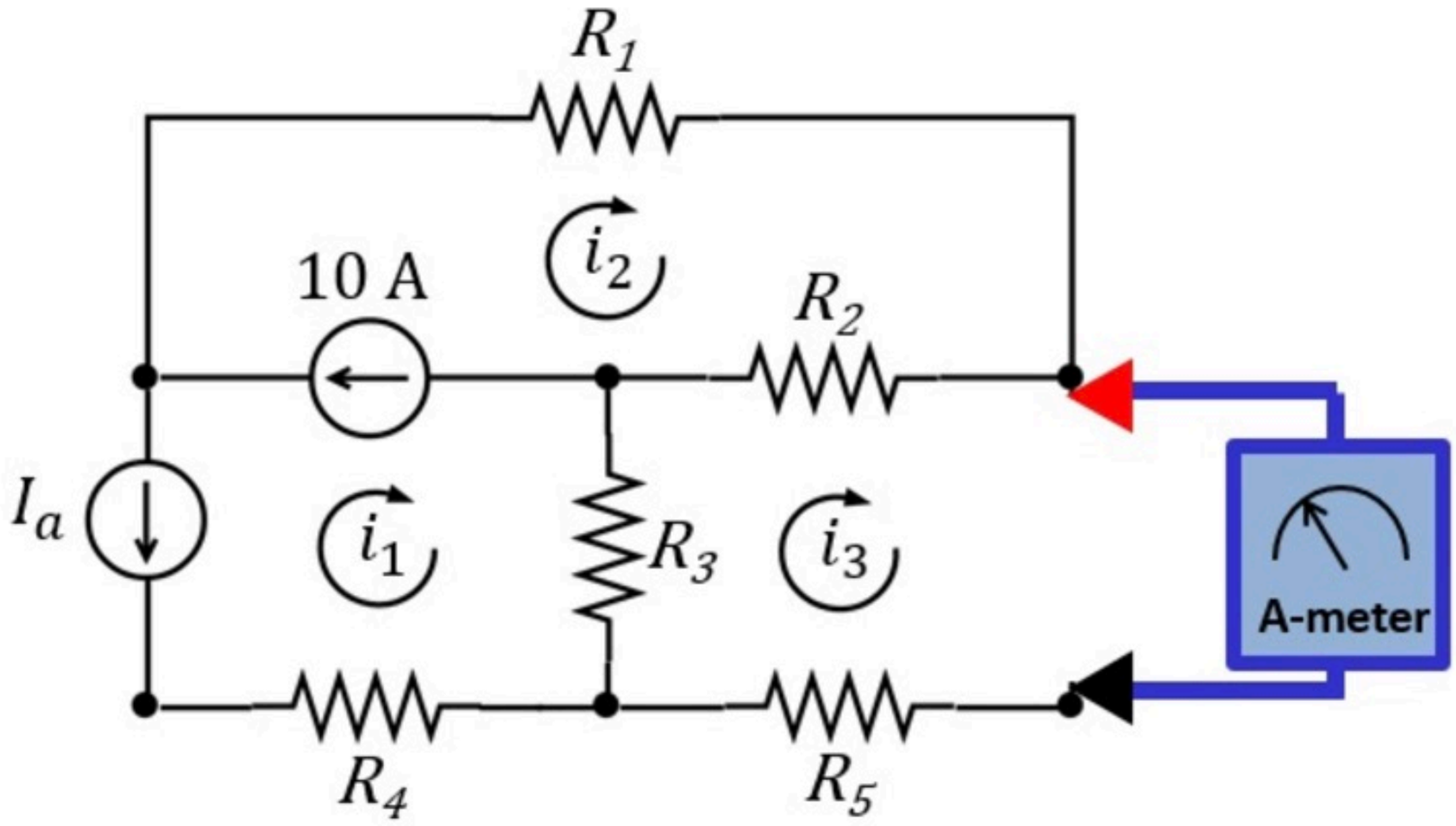
Nodal Mesh 008

Problem has been graded.

Given the ammeter reading X,
find the value of resistance R_3.



Given Variables:

R1 : 2 ohm

R2 : 2 ohm

R4 : 2 ohm

R5 : 2 ohm

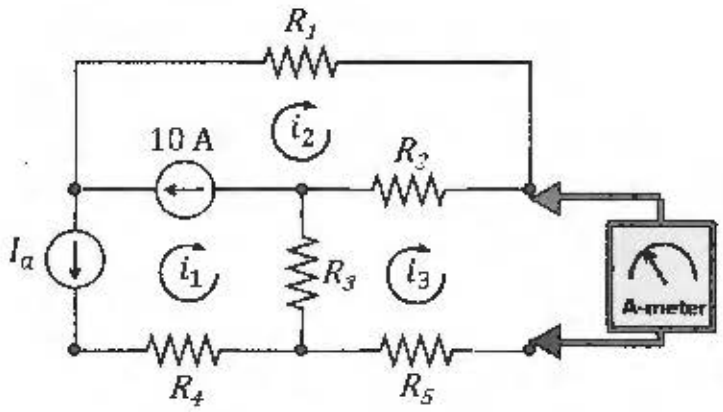
X : 2 A

Ia : 2 A

Calculate the following:

R3 (ohm) :

Given the ammeter reading X,
find the value of resistance R_3.



R1 = 23 Ω

R2 = 2 Ω

R4 = 34 Ω

R5 = 2 Ω

X = 2 A

Ia = 2 A

$i_3 = X = 2$

$i_1 = -I_a = -2$

$i_1 - i_2 = -10 \Rightarrow i_2 = i_1 + 10 = 8$

⊗ KVL IN MESH 3. $R_3 (i_3 - i_1) + R_2 (i_3 - i_2) + 0 + R_5 i_3 = 0$

$R_3 \cdot 4 + 2 \cdot (-6) + 2\ 2 = 0$

$R_3 = 2\ \Omega$