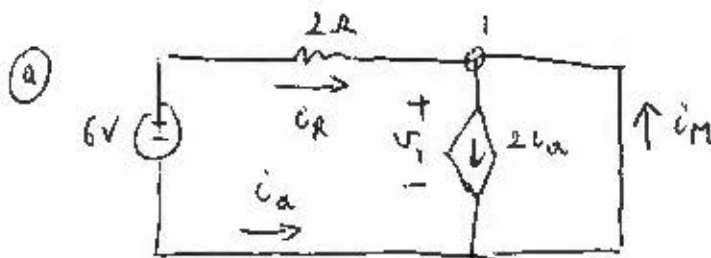
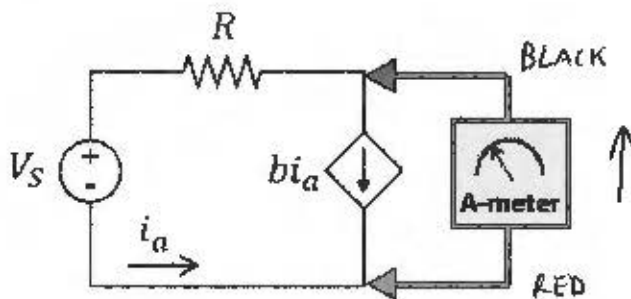


- a) What is the reading  $X$  from the ammeter?
- b) What would be the reading  $Y$  if we replaced the ammeter by a volt-meter?

$$V_s = 6 \text{ V}$$

$$R = 2 \Omega$$

$$b = 2 \text{ A/A}$$



AMMETER EQUIVALENT  
TO A SHORT

$$\Rightarrow v_1 = 0 \text{ V}$$

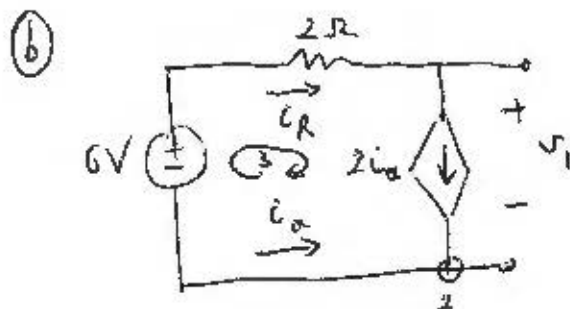
$$\Rightarrow i_R = \frac{6 - v_1}{R} = \frac{6}{2} = 3 \text{ A}$$

$$\Rightarrow i_a = -i_R = -3 \text{ A}$$

$$\text{KCL @ 1: } i_R + i_M = 2 i_a$$

$$i_M = 2 i_a - i_R = 3 i_a = -9$$

$$\boxed{X = -9 \text{ A}}$$



V-METER EQUIVALENT  
TO AN OPEN

$$\text{KCL @ 2: } i_a + 2 i_a = 0 \Rightarrow 3 i_a = 0 \Rightarrow i_a = 0$$

$$\Rightarrow i_R = 0$$

$$\text{KVL 3: } 6 \text{ V} = i_R \cdot 2 + v_1 \Rightarrow v_1 = 6 \text{ V}$$

$$\boxed{Y = 6 \text{ V}}$$