Problem has been graded.
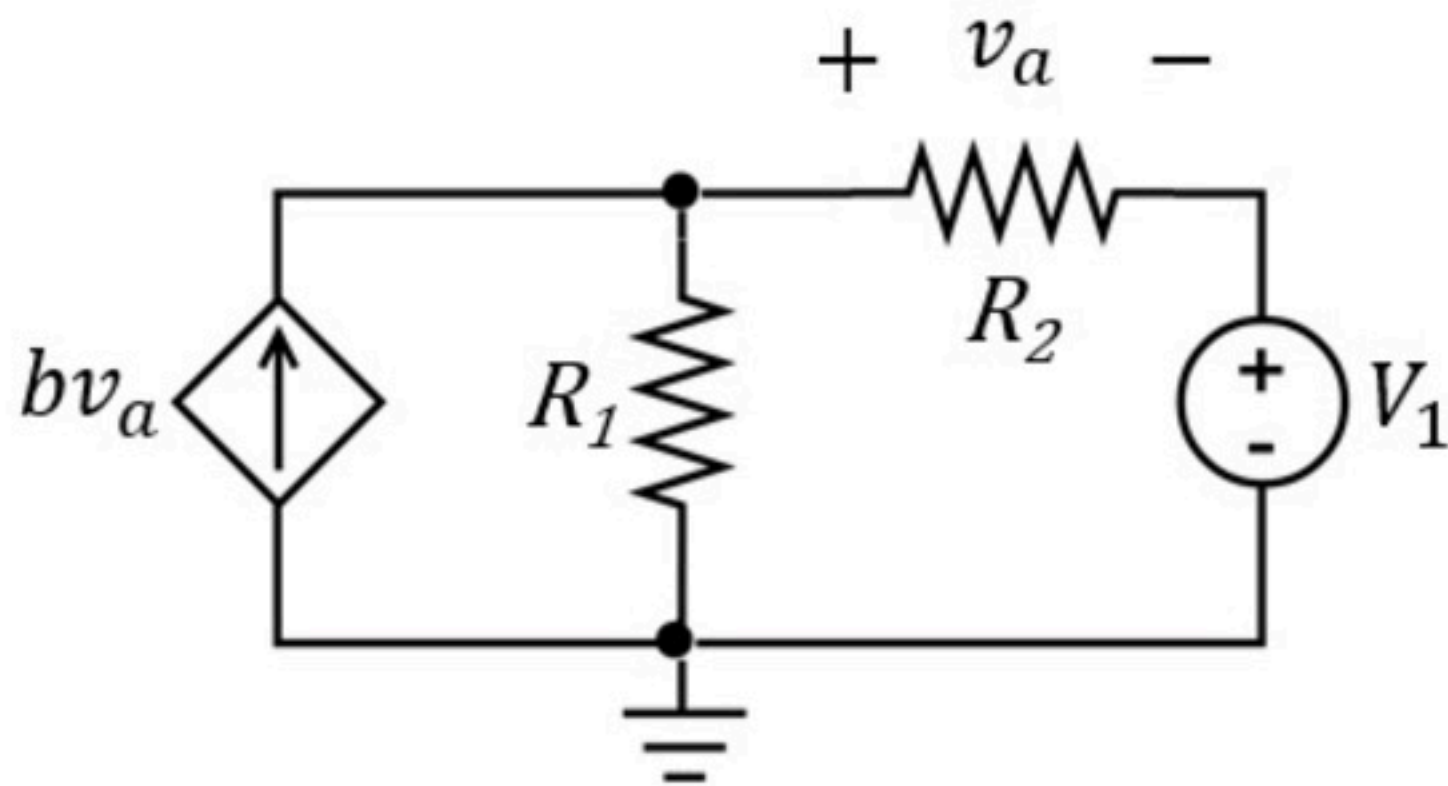
Find the voltage v_a.
Use mesh analysis.

Given Variables:

R1 : 3 ohm

R2 : 4 ohm

b : 1 A/V

V1 : 10 V

Calculate the following:

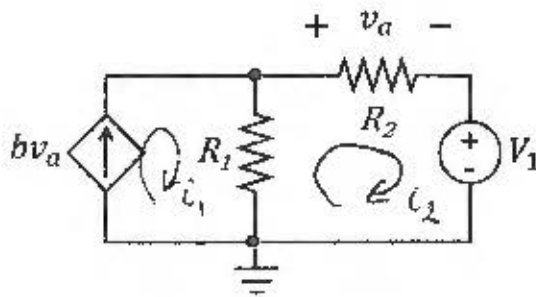va (V) :

Find the voltage v_a.
Use mesh analysis.

R1 = 3 Ω

R2 = 2 Ω

b = 1.5 A/V

V1 = 10 V

$\circledast$ $i_1 = b \cdot v_a = b \, R_2 \, i_2 = 3 \, i_2$

$\circledast$ KVL IN ② : $3 \left(\underbrace{i_2 - i_1}_{-2 i_2} \right) + 2 \cdot i_2 + 10 = 0$

$$-4 i_2 = -10$$

$$i_2 = 2.5 \text{ A} \qquad\qquad i_1 = 7.5 \text{ A}$$

$v_a = i_2 \cdot R_2 = 5V \quad \Rightarrow \quad \boxed{v_a = 5V}$

CHECK · KVL