

1. $v_1 = 15 \text{ V}$

2. $i_1 = 2 \text{ mA}$

3.
$$v_1 = (v_a + i_a R_3) \frac{R_2}{R_1 + R_2 + R_3}$$

4. a)
$$i_1 = \frac{v_a}{R_1} \frac{\alpha}{\alpha - 1}$$

b) Answers vary. Choose convenient values for R 's and sources so solution is obvious. Make sure general answer agrees with the simplified case.

5.
$$v_o = i_s R_4 \left(1 + \frac{R_2 + R_3}{R_1} \right) - v_s \frac{R_2 + R_3}{R_1}$$