

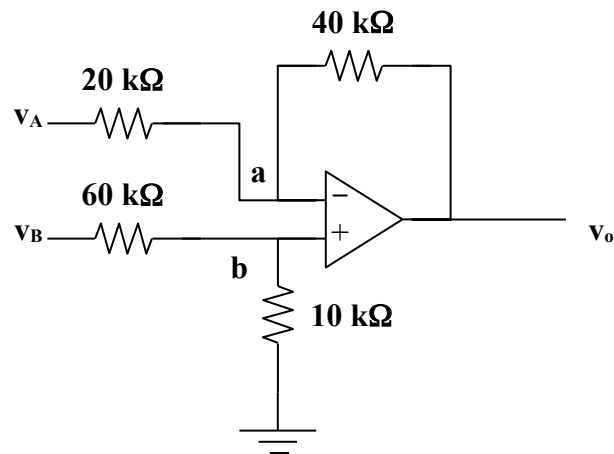
**Chapter 5, Solution 70.**

The output of amplifier A is

$$v_A = -\frac{30}{10}(1) - \frac{30}{10}(2) = -9$$

The output of amplifier B is

$$v_B = -\frac{20}{10}(3) - \frac{20}{10}(4) = -14$$



$$v_b = \frac{10}{60 + 10}(-14) = -2\text{V}$$

At node a,  $\frac{v_A - v_a}{20} = \frac{v_a - v_o}{40}$

But  $v_a = v_b = -2\text{V}$ ,  $2(-9+2) = -2-v_o$

Therefore,  $v_o = \mathbf{12V}$