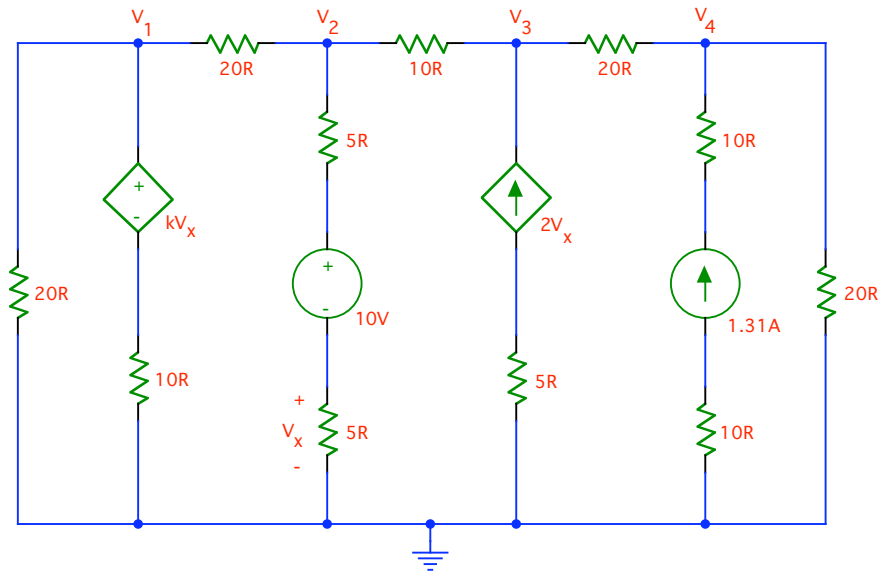


# ECE 211 Fall 2003

## Homework Four

(Due 10/8/03 at the beginning of discussion.)

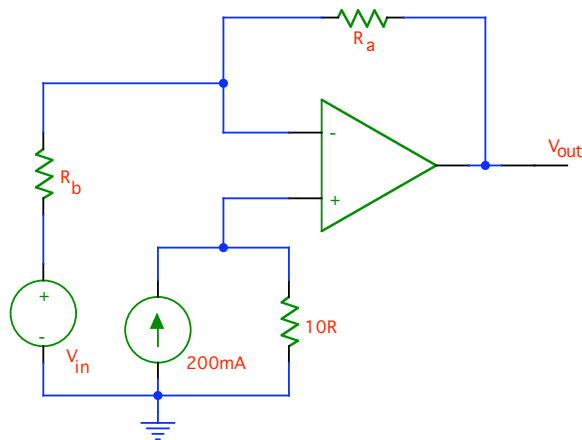
### Problem One:



For the above circuit:

- What value of  $k$  will result in  $V_4=20V$ ? You will have 4 equations and 4 unknowns which you may solve using any tool you like (programmable calculator, Mathematica, MATLAB, ...)
- If you want to hold  $V_4$  to a tolerance  $20 \pm 0.1V$ , what tolerance should  $k$  be held to?
- Given the tolerance for  $k$  you calculated in b), how will  $V_1$ ,  $V_2$ , and  $V_3$  vary?

### Problem Two:



For the above circuit:

- Write an expression for  $V_{out}$  in terms of  $R_a$ ,  $R_b$ , and  $V_{in}$ ?
- Given  $R_b=10kR$  and  $V_{in}=0.5V$ , what value of  $R_a$  will result in  $V_{out}=14V$ ?