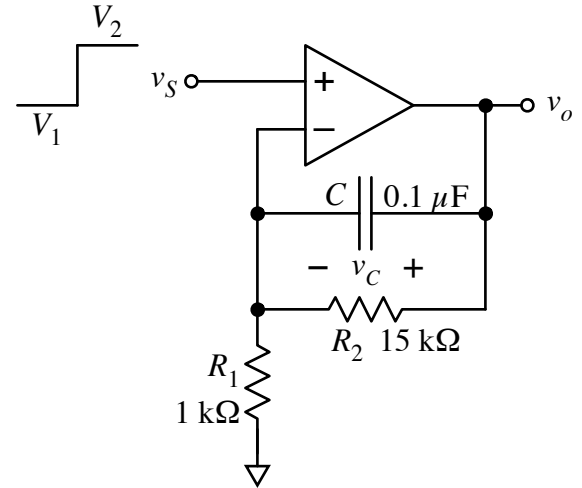


In the op-amp circuit shown, the source at the input changes abruptly from 0.5 V to 1.5 V at  $t = 0$ . Find the expression that describes the transient at the output,  $v_o(t)$ . The op amp is ideal.

Hint — start by considering how the circuit would behave if there were no capacitor. This gives you some idea of what to expect.

Another hint — focus on the capacitor voltage. Come up with a differential equation that relates  $v_C$  and  $v_S$ . Try to write it in the same form as equation on slide 4 of the  $RC$  transient notes and solve it similarly. Then relate  $v_o$  to  $v_C$  and  $v_S$ .



$v_o(t) =$  \_\_\_\_\_