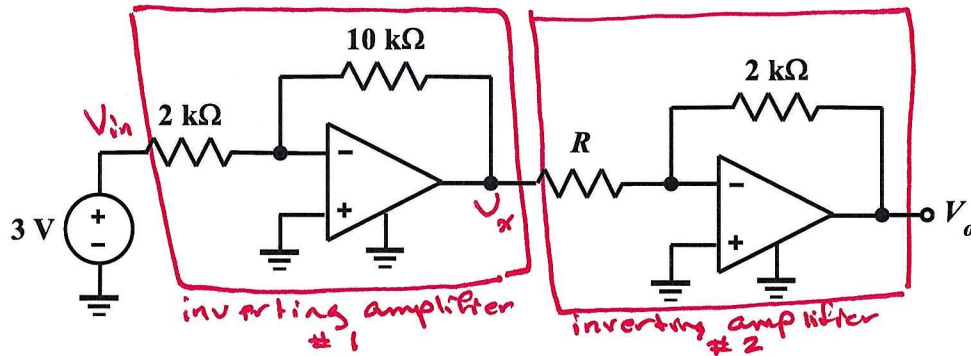


EE 2240
Homework Problem #053



The OpAmps are ideal. Determine the value of R required to make $V_o = 15V$.

$$\begin{aligned}V_x &= -\frac{10k\Omega}{2k\Omega} \cdot V_{in} \\ &= -5 \cdot (3V) \\ &= -15V\end{aligned}$$

$$\begin{aligned}V_o &= -\frac{2k\Omega}{R} \cdot V_x \\ &= -\frac{2k\Omega}{R} \cdot (-15V) \\ &= \frac{30}{R} k\Omega V\end{aligned}$$

$$V_o = 15V \Rightarrow \frac{30}{R} k\Omega V = 15V$$

$$\begin{aligned}\text{or } R &= \frac{30}{15} k\Omega \\ &= 2k\Omega\end{aligned}$$