The overall voltage gain of the amplifier of Fig. 4.44(a) was measured with a resistance $R_s$ of 1 kΩ in place and found to be $-10 \text{ V/V}$. When $R_s$ is shorted, but the circuit operation remained linear the gain doubled. What must $g_m$ be? What value of $R_s$ is needed to obtain an overall voltage gain of $-8 \text{ V/V}$?
4.85 The source follower of Fig. 4.46(a) uses a MOSFET biased to have $g_m = 5$ mA/V and $r_o = 20$ kΩ. Find the open-circuit voltage gain $A_{vo}$ and the output resistance. What will the gain become when a 1-kΩ load resistance ($R_L$) is connected?