

Figure 13-43

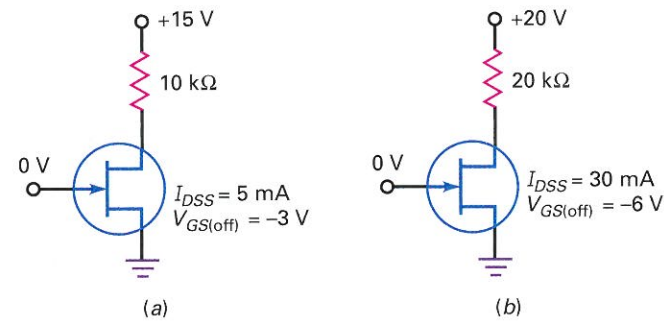


Figure 13-44

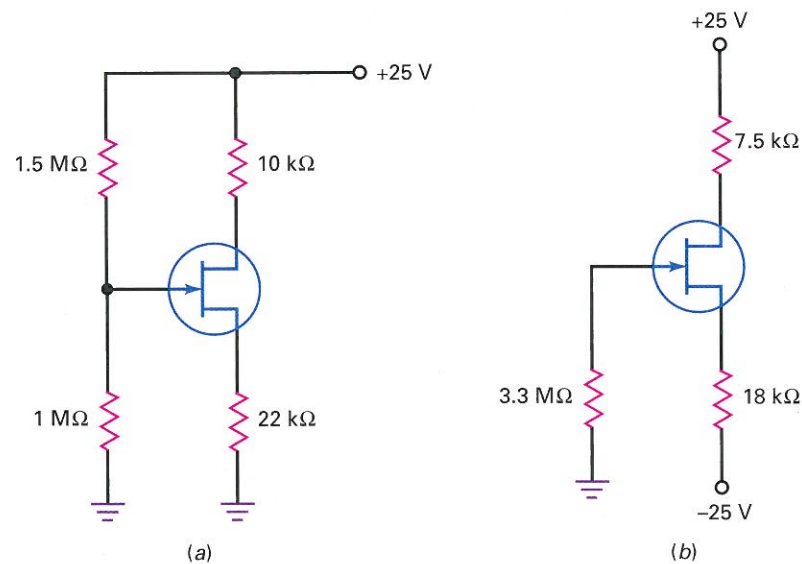
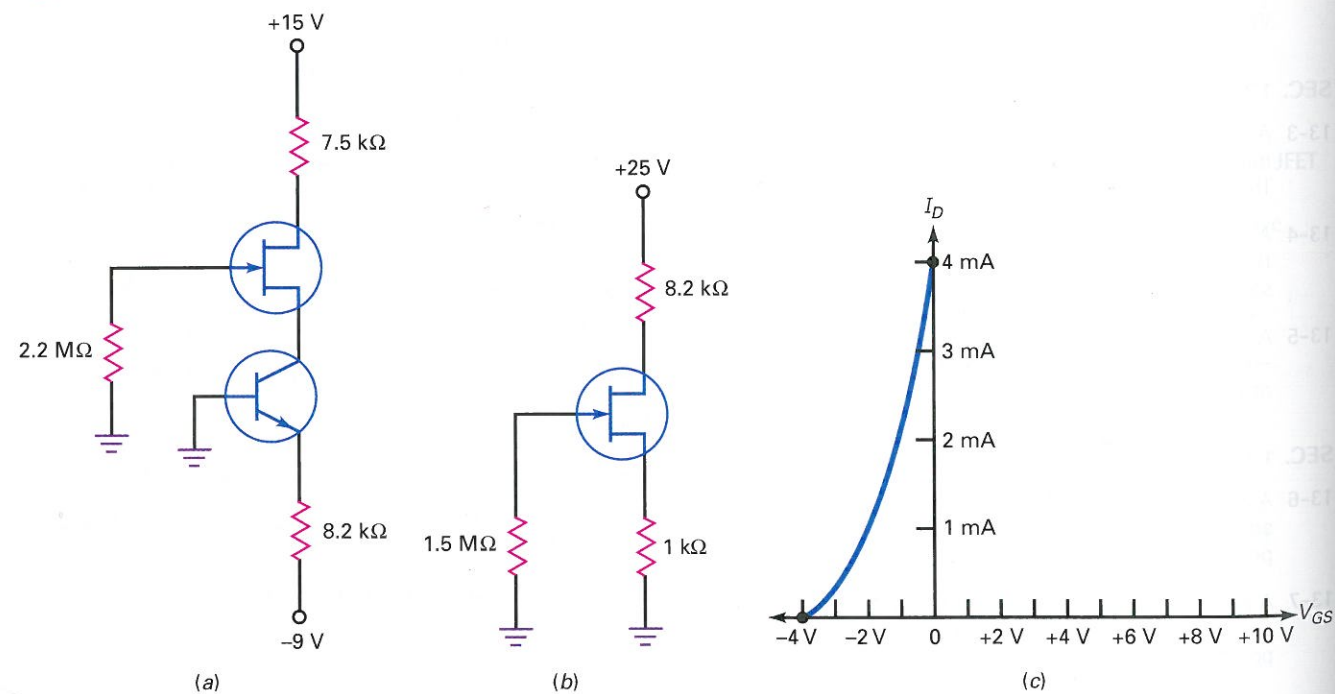


Figure 13-45



13-18 If the $7.5\text{ k}\Omega$ of Fig. 13-45a is changed to $4.7\text{ k}\Omega$, what is the drain current? The drain voltage?

13-19 In Fig. 13-45b, the drain current is 1.5 mA . What does V_{GS} equal? What does V_{DS} equal?

13-20 The voltage across the $1\text{ k}\Omega$ of Fig. 13-45b is 1.5 V . What is the voltage between the drain and ground?

For Problems 13-21 through 13-24, use Fig. 13-45c and graphical methods to find your answers.

13-21 In Fig. 13-44a, find V_{GS} and I_D using the transconductance curve of Fig. 13-45c.

13-22 In Fig. 13-45a, find V_{GS} and V_D using the transconductance curve of Fig. 13-45c.

13-23 In Fig. 13-45b, find V_{GS} and I_D using the transconductance curve of Fig. 13-45c.

13-24 Change R_S in Fig. 13-45b from $1\text{ k}\Omega$ to $2\text{ k}\Omega$. Use the curve of Fig. 13-45c to find V_{GS} , I_D , and V_{DS} .

SEC. 13-6 TRANSCONDUCTANCE

13-25 A 2N4416 has $I_{DSS} = 10\text{ mA}$ and $g_{m0} = 4000\text{ }\mu\text{S}$. What is its gate-source cutoff voltage? What is the value of g_m for $V_{GS} = -1\text{ V}$?

13-26 A 2N3370 has $I_{DSS} = 2.5\text{ mA}$ and $g_{m0} = 1500\text{ }\mu\text{S}$. What is the value of g_m for $V_{GS} = -1\text{ V}$?

13-27 The JFET of Fig. 13-46a has $g_{m0} = 6000\text{ }\mu\text{S}$. If $I_{DSS} = 12\text{ mA}$, what is the approximate value of I_D for V_{GS} of -2 V ? Find the g_m for this I_D .

SEC. 13-7 JFET AMPLIFIERS

13-28 If $g_m = 3000\text{ }\mu\text{S}$ in Fig. 13-46a, what is the ac output voltage?

13-29 The JFET amplifier of Fig. 13-46a has the transconductance curve of Fig. 13-46b. What is the approximate ac output voltage?

13-30 If the source follower of Fig. 13-47a has $g_m = 2000\text{ }\mu\text{S}$, what is the ac output voltage?

Figure 13-46

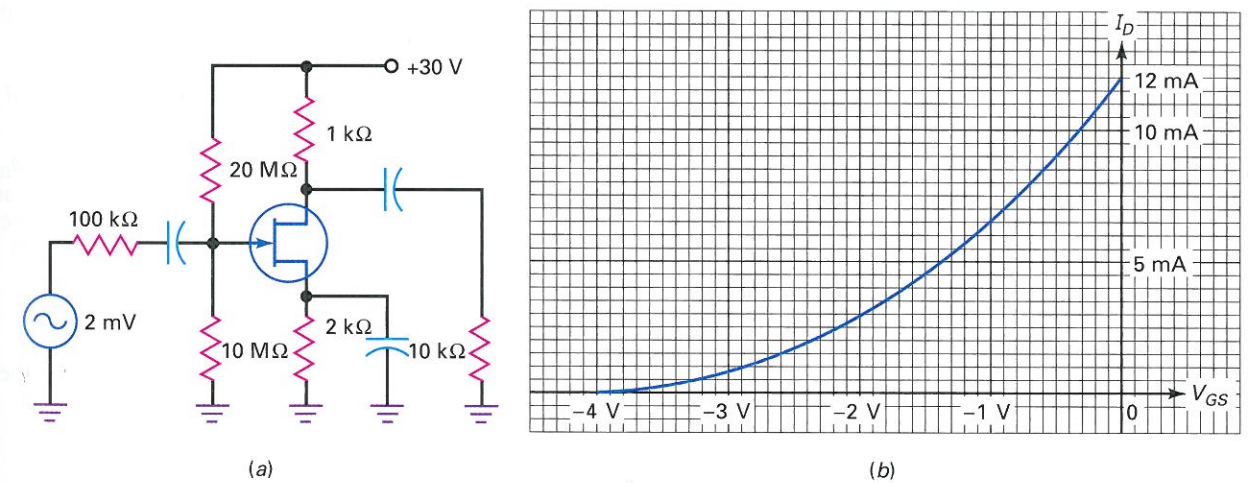


Figure 13-47

