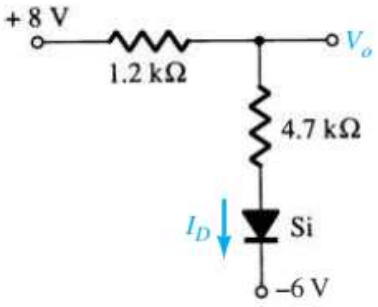
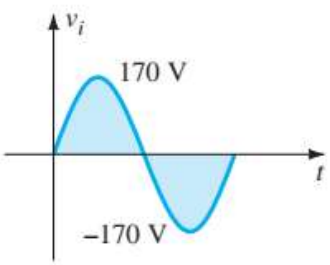
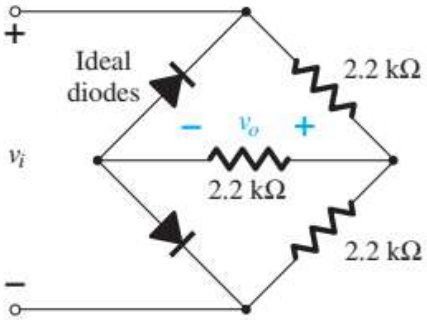
EEE206 Midterm Preparation

Example 1

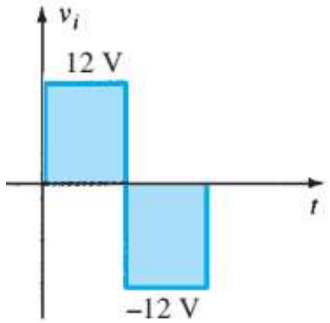


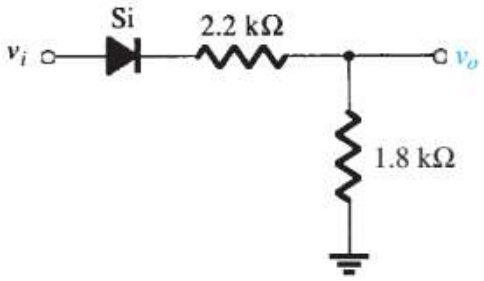
Example 2



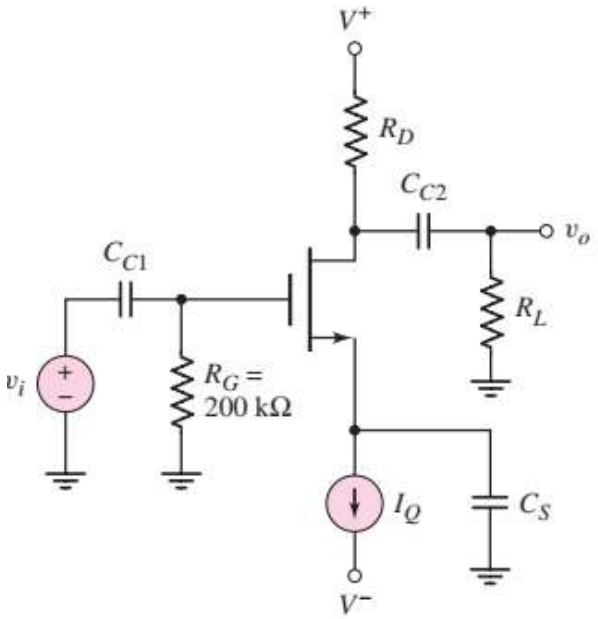


Example 3





Example 4

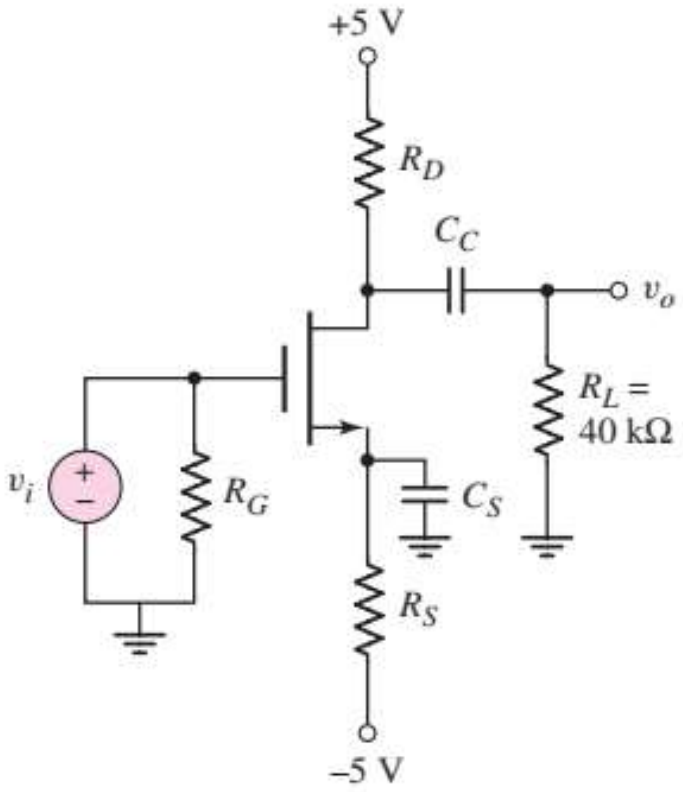


The transistor in the common-source amplifier in has parameters VT N = 0.8 V, kn=2.50 mA/v^2, and λ = 0.02 V^−1.

The circuit parameters are V + = 5 V, V − = −5 V, IQ = 0.5 mA, and

RD = 6 k. (a) Determine VGSQ and VDSQ. (b) Find the small-signal voltage gain,Ro,Ri for RL = 20k

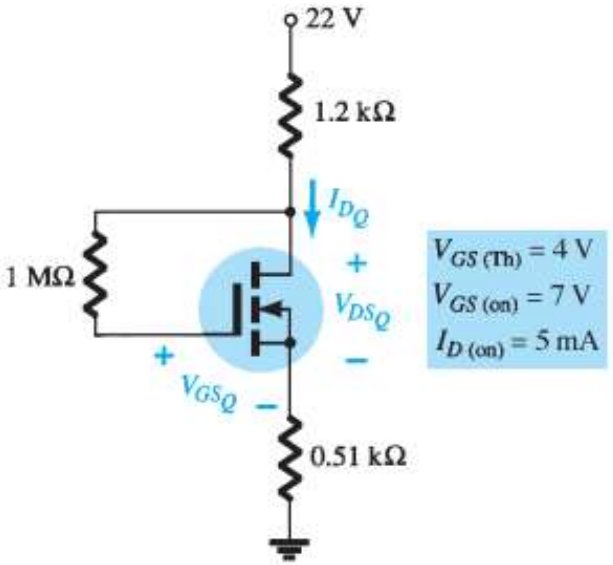
Example 5



The parameters of the MOSFET in the circuit shown in Figure are VT N = 0.8 V, Kn = 0.85 mA/V2, and λ = 0.02 V^−1. (a) Determine RS and RD such that IDQ = 0.1 mA and VDSQ = 5.5 V. (b) Find the small-signal transistor parameters. (c) Determine the small-signal voltage gain.

Example 6

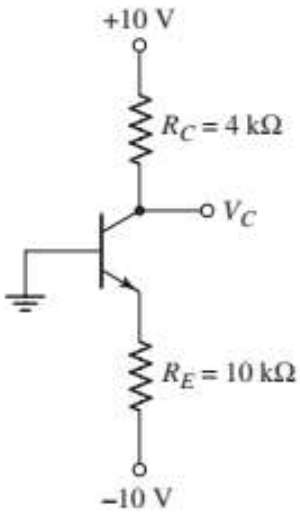
Find VG,VS ,VD VDSQ IDQ and determine if we are in saturation or not



Enhanced mode NMOS

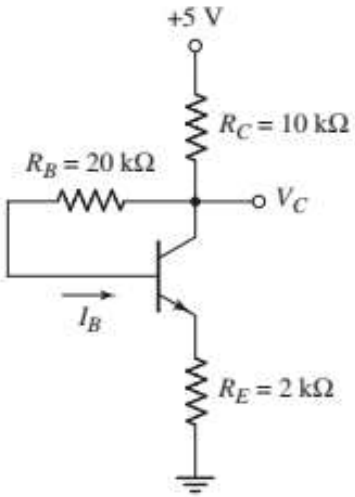
Example 7

Determine I_B, I_C, I_E, VB,VC ,VE. Beta=75



Example 8

$$\beta = 75.$$



Example 9