

- 10-59 What is the MPP output that could be measured at the junction of R_{46} and R_{47} ?
- 10-58 What type of circuit does the transistors Q_1 and Q_2 form?
- The following questions, 10-58 through 10-62, are directed toward the schematic diagram of the Digital/Analog Trainer System found on the Instructor Resources section of *Connect for Electronic Principles*. A full Instruction Manual for the Model XK-700 trainer can be found at www.eleenco.com.

Digital/Analog Trainer System

- 10-60 What is the purpose of diodes D_{16} and D_{17} ?
- 10-61 Using 0.7 V for the diode drops of D_{16} and D_{17} , what is the approximate quiescent collector current for Q_1 and Q_2 ?
- 10-62 Without any ac input signal to the power amp, what is the normal dc voltage level at the junction of R_{46} and R_{47} ?

Multisim Troubleshooting Problems

- 10-48 The output of an amplifier is a square-wave output even though the input is a sine wave. What is the explanation?
- 10-49 A power transistor like the one in Fig. 10-36 is used in an amplifier. Somebody tells you that since the case is grounded, you can safely touch the case. What do you think about this?
- 10-50 You are in a bookstore and you read the following in an electronics book: "Some power amplifiers fault and, if so, determine the circuit fault."
- The Multisim troubleshooting files are found on the Instructor Resources section of *Connect for Electronic Principles*, in a folder named Multisim Troubleshooting Circuits (MTC). See page XVI for more details. For this chapter, the files are labeled MTC10-53 through MTC10-57 and are based on the circuit of Figure 10-43. Open up and troubleshoot each of the respective files. Take measurements to determine if there is a fault and, if so, determine the circuit fault.
- 10-53 Open up and troubleshoot file MTC10-53.
- 10-54 Open up and troubleshoot file MTC10-54.
- 10-55 Open up and troubleshoot file MTC10-55.
- 10-56 Open up and troubleshoot file MTC10-56.
- 10-57 Open up and troubleshoot file MTC10-57.

Critical Thinking

- 10-43 If the Q of the inductor is 125 in Fig. 10-44, what is the bandwidth of the amplifier?
- 10-44 What is the worst-case transistor power dissipation in Fig. 10-44 ($Q = 125$)?
- SEC. 10-10 TRANSISTOR POWER RATING**
- 10-45 A 2N3904 is used in Fig. 10-44. If the circuit has to operate over an ambient temperature range of 0 to 100°C, what is the maximum power rating of the transistor in the worst case?
- 10-46 A transistor has the derating curve shown in Fig. 10-34. What is the maximum power rating for an ambient temperature of 100°C?
- 10-47 The data sheet of a 2N3055 lists a power rating of 115 W for a case temperature of 25°C. If the derating factor is 0.657 W/°C, what is $P_{D(max)}$ when the case temperature is 90°C?

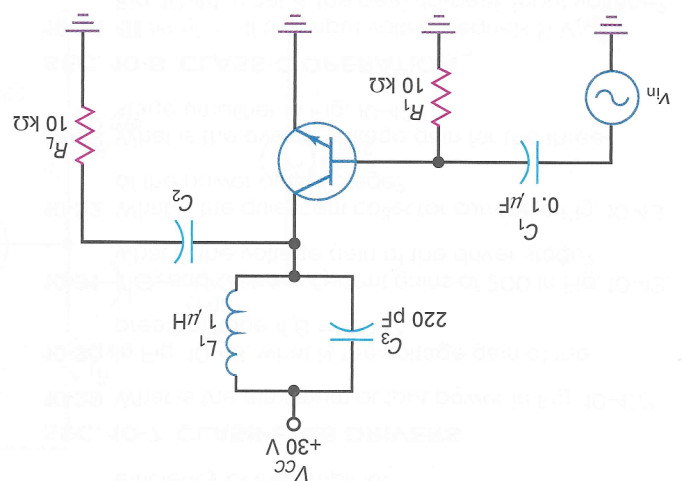


Figure 10-44