

Fig. P2.7

2.10 Find the node voltages for the circuit shown in Fig. P2.10.

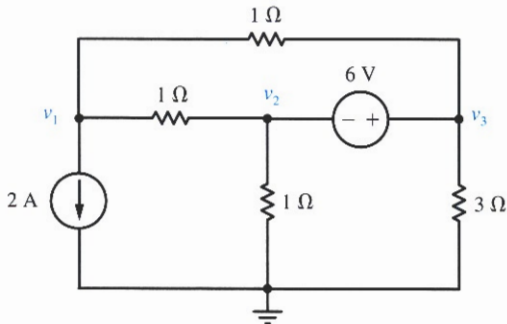


Fig. P2.10

2.12 Find the node voltages for the circuit shown in Fig. P2.12. The circuit is a hybrid- π model of a BJT amplifier. The circuit is a resistor network with a dependent current source. The dependent current source is represented by a diamond with a plus sign on top and a minus sign on bottom. Its value is $g_m v_{be}$, where g_m is the transconductance and v_{be} is the base-emitter voltage. The circuit is shown in Fig. P2.12.

$$\frac{v_2}{v_1} =$$

2.13 Find the node voltages for the circuit shown in Fig. P2.13. The circuit is a hybrid- π model of a BJT amplifier. The circuit is a resistor network with a dependent current source. The dependent current source is represented by a diamond with a plus sign on top and a minus sign on bottom. Its value is $g_m v_{be}$, where g_m is the transconductance and v_{be} is the base-emitter voltage. The circuit is shown in Fig. P2.13.

2.26 Assume clockwise mesh currents for the circuit shown in Fig. P2.26 (below). Use mesh analysis to find these mesh currents.

2.27 For the circuit shown in Fig. P2.27, find v_o when the ideal amplifier (a) is an op amp, and (b) has finite gain A .

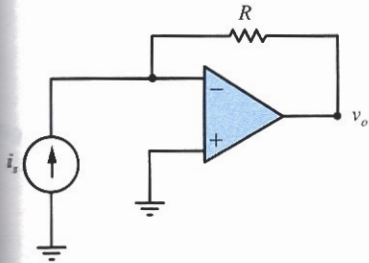


Fig. P2.27

2.28 For the op-amp circuit shown in Fig. P2.28, find (a) v_o , and (b) i_o .

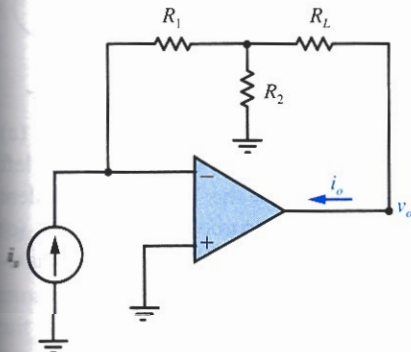


Fig. P2.28

2.29 For the op-amp circuit shown in Fig. P2.29, find (a) v_o , and (b) i_o .

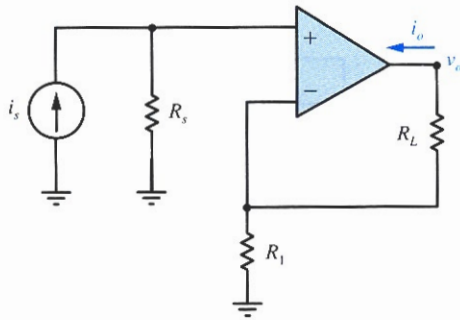


Fig. P2.29

2.30 The op-amp circuit shown in Fig. P2.30 is known as a **negative-impedance converter**. For this circuit, find (a) v_o , and (b) the resistance v_s/i_s .

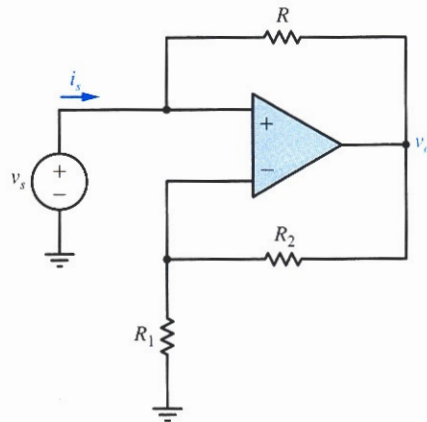


Fig. P2.30

2.31 For the op-amp circuit shown in Fig. P2.31, find (a) v_o , and (b) the resistance v_s/i_s . (See p. 104.)

2.32 For the op-amp circuit shown in Fig. P2.31, interchange the 1- Ω and 2- Ω resistors, and find (a) v_o , and (b) the resistance v_s/i_s . (See p. 104.)

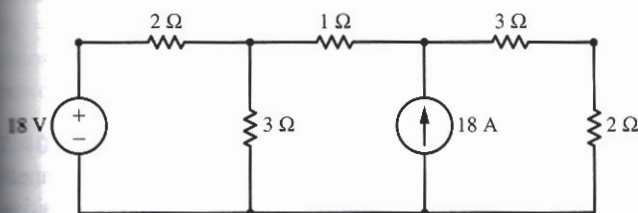


Fig. P2.26