4.28 For the RLC circuit shown in Fig. P4.28, suppose that \( v_0(t) = 10 \cos 3t \) V. Find the average power absorbed by the 4-Ω resistor for the case that (a) \( C = \frac{1}{3} \) F; (b) \( C = \frac{1}{5} \) F; (c) \( C = \frac{1}{6} \) F.

4.29 For the circuit shown in Fig. P4.29, suppose that \( v_0(t) = 8 \cos 2t \) V. Find the average power absorbed by each element in the circuit for the case that \( Z_L = 1 \) Ω.

4.30 For the circuit shown in Fig. P4.23, change the value of the resistor to 2 Ω and the value of the capacitor to \( \frac{1}{4} \) F. Suppose that \( v_0(t) = 8 \cos 2t \) V. (a) Find the load impedance \( Z_L \) that absorbs the maximum average power, and determine this power. (b) Find the load resistance \( R_L \) that absorbs the maximum power for resistive loads, and determine this power.

4.31 For the op-amp circuit given in Fig. P4.21, when \( v_0(t) = 6 \sin 2t \) V, then the output voltage \( v_o(t) = 13.4 \cos(2t + 117°) \) V. Find the average power absorbed by each element.

4.32 For the op-amp circuit given in Fig. P4.22, when \( v_0(t) = 3 \cos 2t \) V, then the output voltage \( v_o(t) = 10.6 \cos(2t + 135°) \) V. Find the average power absorbed by each element.

4.33 For the op-amp circuit given in Fig. P4.23, when \( v_0(t) = 4 \cos(2t - 30°) \) V, then \( v_o(t) = 1.6 \cos(2t - 66.9°) \) V and \( v_o(t) = 1.6 \cos(2t + 23.1°) \) V. Find the average power absorbed by each element.

4.34 For the circuit given in Fig. P4.24, when \( V_{s1} = 250V / 2^{-30°} \) V, \( V_{s2} = 250V / 2^{-90°} \) V and \( Z = 78 - j45 \) Ω, then \( I_1 = 6.8/30° \) A and \( I_2 = 6.8/90° \) A. (a) Find the average power absorbed by each impedance. (b) Find the average power supplied by each source.

4.35 For the circuit given in Fig. P4.25, when \( V_{s1} = 250V / 2^{-30°} \) V, \( V_{s2} = 250V / 2^{-90°} \) V, and \( Z = 26 - j15 \) Ω, then \( I_1 = 6.8/30° \) A and \( I_2 = 6.8/90° \) A. (a) Find the average power absorbed by each impedance. (b) Find the average power supplied by each source.