Chapter 11, Solution 1.

$v(t) = 160\cos(50t)$

$i(t) = -33\sin(50t-30^\circ) = 33\cos(50t-30^\circ+180^\circ-90^\circ) = 33\cos(50t+60^\circ)$

$p(t) = v(t)i(t) = 160x33\cos(50t)\cos(50t+60^\circ)$

$= 5280(1/2)[\cos(100t+60^\circ)+\cos(60^\circ)] =$ **$[1.320+2.640\cos(100t+60^\circ)]$ kW**.

$P = [V_m I_m/2]\cos(0-60^\circ) = 0.5x160x33x0.5 =$ **1.320 kW**.