Numerical solutions of a few sample problems from previous finals

P-1: $Z_L = 2 + j, \quad P = 11.25\,W \quad v_z = 7.5\cos(10t)$

P-2: $P=25W$

P-3: $Z_Y = 3.2 + j2.4\ \Omega \quad V_p = 200\angle 36.87 \quad V_{L-L} = 200\sqrt{3}\angle 66.87$
$S = 24000 + j18000 \quad pf = 0.8\ lagging \quad C = 398\ \mu F$

P-4: $V_p = 2\angle 0\ kVrms \quad V_{L-L} = 2\sqrt{3}\angle 30 \quad C = 19.89\ \mu F \quad I_L = 20V_{L-L} = 2\sqrt{3}\angle 30$

P-5: $Z_L = 8 - 6j, \quad P = 25$

P-6: $v_0(t) = 2e^{-t}[\cos(t) + \sin(t)]u(t) = 2\sqrt{2}e^{-t}\cos(t-45)u(t)$
$\lim_{t\to 0} v_0(t) = 2 \quad \lim_{t\to\infty} v_0(t) = 0$

P-7: Done in Class

p-8: $I_{rms} = \sqrt{226}, \quad i_o(t) = 16\cos(4t+90) + 4\sqrt{10}\cos(8t+18.4) \quad P = 416\,W$