

ECE207 Elements of Electrical Engineering Selected Answers for HW # 2

2 – 1

- a) $\mathbf{S} = 1.875/\underline{36.9}$ kVA
- b) $\mathbf{I} = 7.813/\underline{-36.9}$ A
- c) $\mathbf{Z} = 30.72/\underline{36.9}$ Ω

2 – 2

- a) $\mathbf{S}_1 = 123.3/\underline{-29.5}$ VA and $\mathbf{S}_2 = -93.35/\underline{-78.7}$ VA (NOTE that \mathbf{I}_2 flows into the + terminal of the voltage source)

2 – 3

- b) $\mathbf{I} = 60.1/\underline{-45.6}$ A
- c) $P_{\text{loss}} = 5.42$ kW
- e) $\eta = 97\%$

2 – 4

- a) $C = 14.37$ μF
- c) $\text{VR} = 2.5\%$

2 – 5

- a) $\mathbf{I} = 1.415/\underline{-43.5}$ A
- b) $\mathbf{V} = 223.1/\underline{0.7}$ V
- d) $\text{pf}_{\text{load}} = 0.7169$ lag (Remember to combine voltage and current angles)
- e) $\text{VR} = 7.55\%$

Remember: Phasor voltages and currents are in RMS.

Don't forget to show all your work.

The grader will give no partial credit for unsupported work. Even less will be given for work that does not lead to the answer given in your homework.