Q2

2.2

$$
\begin{aligned}
V_S e^{i(wt+\phi_S)} &= V_{R_1} e^{i(wt+\phi_{R_1})} + V_{R_2} e^{i(wt+\phi_{R_2})} + V_{C_3} e^{i(wt+\phi_{C_3})} + V_{C_4} e^{i(wt+\phi_{C_4})} \\
V_S e^{i\phi_S} &= V_{R_1} e^{i\phi_{R_1}} + V_{R_2} e^{i\phi_{R_2}} + V_{C_3} e^{i\phi_{C_3}} + V_{C_4} e^{i\phi_{C_4}} \\
1.25 &= (0.34 + 0.605) e^{i0.22\pi} + (0.505 + 0.33) e^{-i0.28\pi} \\
1.25 &= 0.945(\cos(0.22\pi) + i\sin(0.22\pi)) + 0.835(cos(0.28\pi) - i\sin(0.28\pi)) \\
1.25 &= 0.77 + i0.6 + 0.53 - i0.64 \\
1.25 &= 1.30 + 0.01i \\
1.25 &\approx 1.30 e^{i0} \approx 1.30
\end{aligned}
$$

2.5

https://tinyurl.com/yte6sbv4