Ex: Solving State Plane EQs Using Matlab

Sinusoidal Analysis (Ch 19)
Sinusoidal Analysis: Comments

• Generally most accurate when operating near resonance with a high $Q$

• Effective quality factor $Q_e$ depends not only on resonant tank, but also on loading

• Analysis neglects switching intervals; can only predict where ZVS cannot be obtained

![Graph showing the relationship between $M = \frac{V_o}{V_i}$ and $F$](image)

*Fig. 2.14. Comparison of exact and approximate series resonant converter characteristics, below resonance.*

AC Link Waveforms

![Diagram of AC link waveforms](image)
Switch Network Sinusoidal Analysis
Switch Network Equivalent Circuit

Diode Rectifier Sinusoidal Analysis
Diode Rectifier Equivalent Circuit