Parallel Complex Impedances (28:29)

Identify the formulas used to determine the total impedance of a parallel arrangement of complex impedances.

Determine the total impedance of a parallel arrangement of a 200Ω resistor and a 530.5mH inductor at an excitation frequency of 60Hz. Identify the primary nature of this circuit.

Determine the complex impedance of the above parallel circuit at a reduced excitation frequency of 30Hz. Identify the primary nature of this circuit.

Determine the complex impedance of the above parallel circuit at an increased excitation frequency of 120Hz. Identify the primary nature of this circuit.

Identify which element in a parallel circuit determines the primary nature of the circuit.

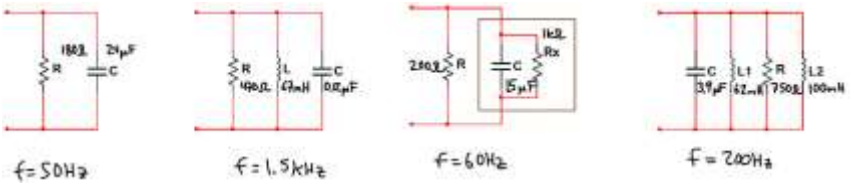
Determine the total impedance of a parallel arrangement of a 160Ω resistor, a 180mH inductor, and a 27µF capacitor at an excitation frequency of 50Hz. Identify the primary nature of this circuit. Identify how the capacitor and inductor interact.

Determine the complex impedance of the above parallel circuit at an increased excitation frequency of 400Hz. Identify the primary nature of this circuit.

Determine the impedance of a non-ideal 0.62µF capacitor including a parallel leakage path of 10kΩ at an excitation frequency of 1.2kHz.

Determine the total impedance of a parallel combination of the above non-ideal capacitor and a 270Ω resistor and a 16mH inductor at an excitation frequency of 1.2kHz.

Given the following data determine the total impedance of these parallel circuits:



Discuss how shorts and opens influence the total impedance of parallel AC circuits.

Determine the total impedance of a parallel arrangement of a 160Ω resistor, a 180mH inductor, and a 27µF capacitor at an excitation frequency of 60Hz.

Determine the total impedance of the above relationship when it includes a short circuit.

Determine the total impedance of the above relationship when the capacitor is removed from consideration with an open circuit.

Determine the total impedance of the above relationship when the complete parallel combination is removed from consideration with an open circuit.

Given the following data determine the total impedance of these parallel circuits including shorts and opens: