Topics

Complex Number Arithmetic

DC & AC Power Dissipation in Resistors
Maximum Power Transfer
AC Power Factor

Decibel Calculations
P2 / P1 in dB = 10 log (P2 / P1)
V2 / V1 in dB = 20 log(V2 / V1)
0 dB implies P2 = P1
Half Power Point = -3dB (Same as RMS voltage 0.707 Vpeak)
Power expressed in dBm = 10 log (Power in milliwatts)

Examples:
Use decibels to calculate the following:

a. Given the ratio of two voltages $V_2 / V_1 = 25$; express the voltage ratio in dB. (+28 dB)
b. Given the power ratio of $P_2 / P_1 = 50$; express the power ratio in dB. (+17 dB)
c. Express 400 milliwatts in dBm. (+26 dBm)
d. Express 400 microwatts (0.400 milliwatts) in dBm. (-4 dBm)
e. For additional examples - See Course Handouts

Transformer Calculations (Turns, Current, Voltage, Impedance, Power, Phase Dots)

Power Supplies
Calculate power supply current, voltage, component values

Handouts

Fall 2015 Course Notes Test 3
Complex Numbers
Decibels
Transformers
Power Supplies (Rectifiers)