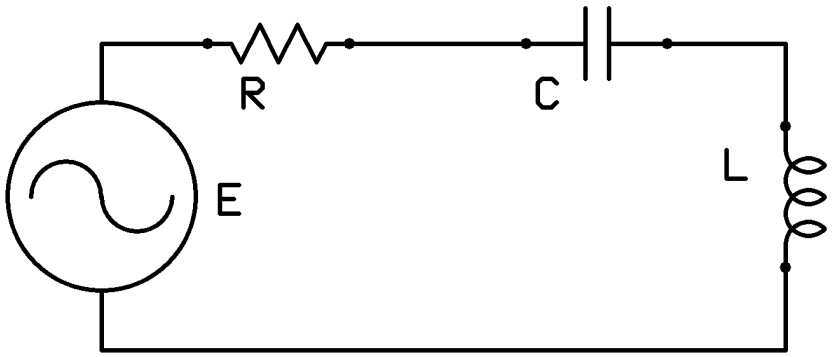


E = 10 V_p
R = 560 mΩ
C = 100 nF
L = 220 µH

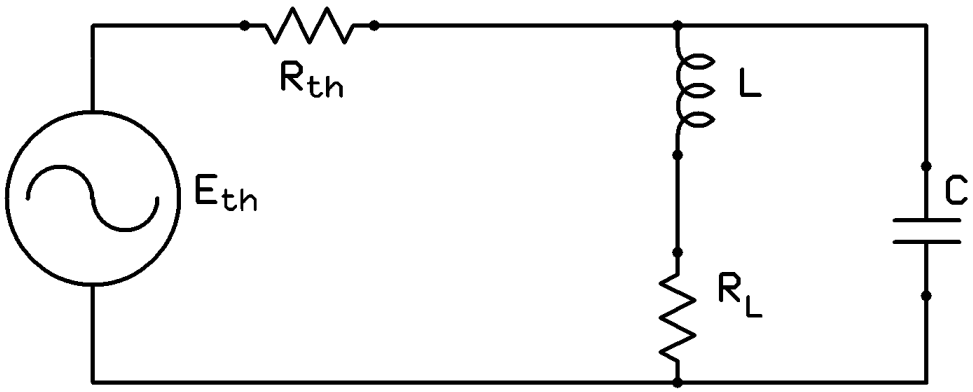
53. What is the resonant frequency of this circuit?

54. What is the bandwidth?

55. What is the quality factor?

56. At resonance, what is the current?

57. At resonance, what is V_C?



E_{th} = 5 V_p
R_{th} = 200 Ω
R_L = 10 Ω
C = 820 pF
L = 500 µH

58. What is f_s for this circuit?

59. What is f_p for this circuit?

60. What is bandwidth of this circuit?

61. What is the total parallel impedance seen by the source?

62. For voltage, a gain factor of 10 is equal to:
a. 10 dB
b. 2 dB
c. 6 dB
d. 20 dB

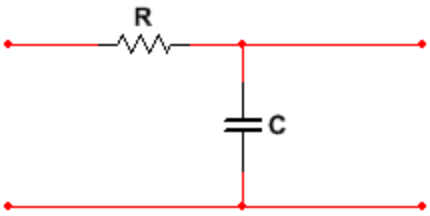
63. For voltage, a gain of 6 dB is equal to a gain of:
a. 10
b. 2
c. 20
d. 0.5

64. A system with a gain of 8 dB has 500 mV_p fed into it. What is the output voltage?
a. 9.03 V_p
b. 4.05 V_p
c. 3.16 V_p
d. 1.26 V_p

65. A circuit has an input of 2 V_{rms}, and an output of 220 V_{rms}. What is the gain?
a. 20.4 dB
b. 40.8 dB
c. 46.8 dB
d. 110 dB

66. A circuit outputs 3.5 W with an input power of 1.2 W. What is the gain of the system?
a. 9.3 dB
b. 5.44 dB
c. -4.64 dB
d. 4.64 dB

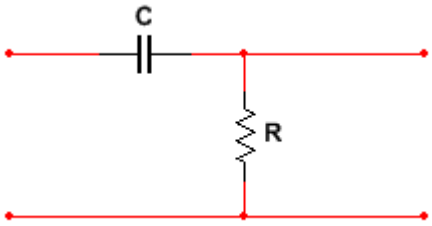
67. A system with a gain of 44 dB is fed 820 µW. What is the output power?
a. 85 mW
b. 85 W
c. 130 mW
d. 20.6 W



R = 100 Ω
C = 220 nF

68. What is the break frequency of this filter?
a. 0.722 Hz
b. 7.23 kHz
c. 7.23 Hz
d. 10.7 Hz

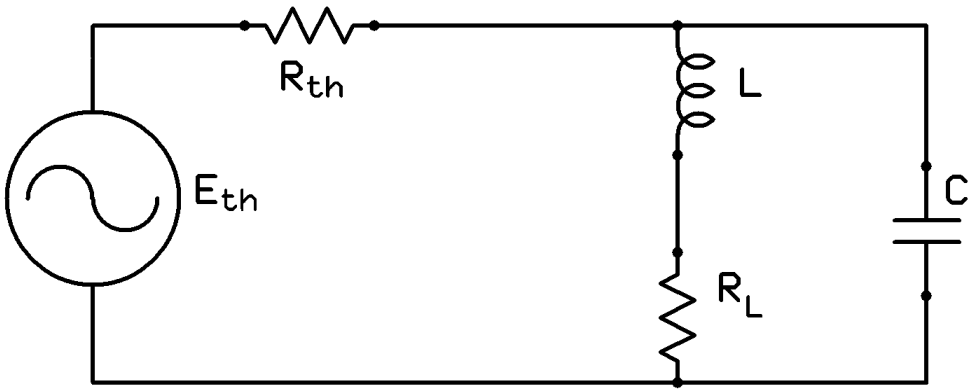
69. For the above filter, what is the gain at $10f_c$?
a. -3 dB
b. -6 dB
c. -10 dB
d. -20 dB



R = 470 Ω
C = 47 nF

70. What is the cut-off frequency of this filter?
a. 720 Hz
b. 1.1 Hz
c. 33.9 Hz
d. 7.2 kHz

71. What is the gain at $10f_c$?
a. -6 dB
b. -20 dB
c. -0.8 dB
d. -3 dB



E_{th} = 2.5 V_p
R_{th} = 150 Ω
R_L = 30 Ω
C = 47 pF
L = 2.2 mH

72. For the above circuit, what is the center frequency?

73. For the above circuit, what is the bandwidth?

74. Which is better?
a. Waffles
b. Pancakes

75. An ideal transformer has an input voltage of 120 V_{rms}. The output voltage is 19 V_{rms}. What is the turns ratio?

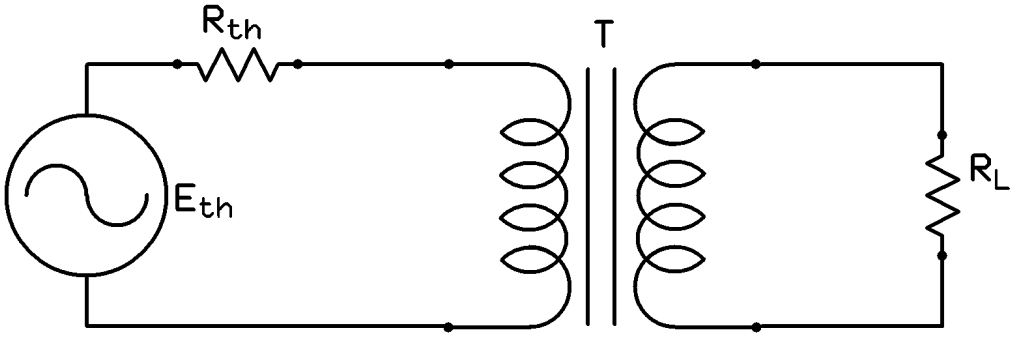
a. 6.316
b. 0.1583
c. 12
d. 19

76. An ideal transformer with a turns ratio of 8:1 has a primary current of 150 mA_{rms}. What is the secondary current?

a. 18.75 mA_{rms}
b. 2.34 mA_{rms}
c. 1200 mA_{rms}
d. 9600 mA_{rms}

77. An iron-core transformer has a primary inductance of 200 mH and a secondary inductance of 600 mH. What is the mutual inductance?

a. 120 H
b. 3 mH
c. 346 mH
d. 333 µH



$E_{th} = 10\ V_p$
$R_{th} = 50\ \Omega$
$R_L = 1\ k\Omega$

78. For the circuit above, what turns ratio should be used for the transformer to achieve maximum power transfer to the load, assuming an ideal transformer?

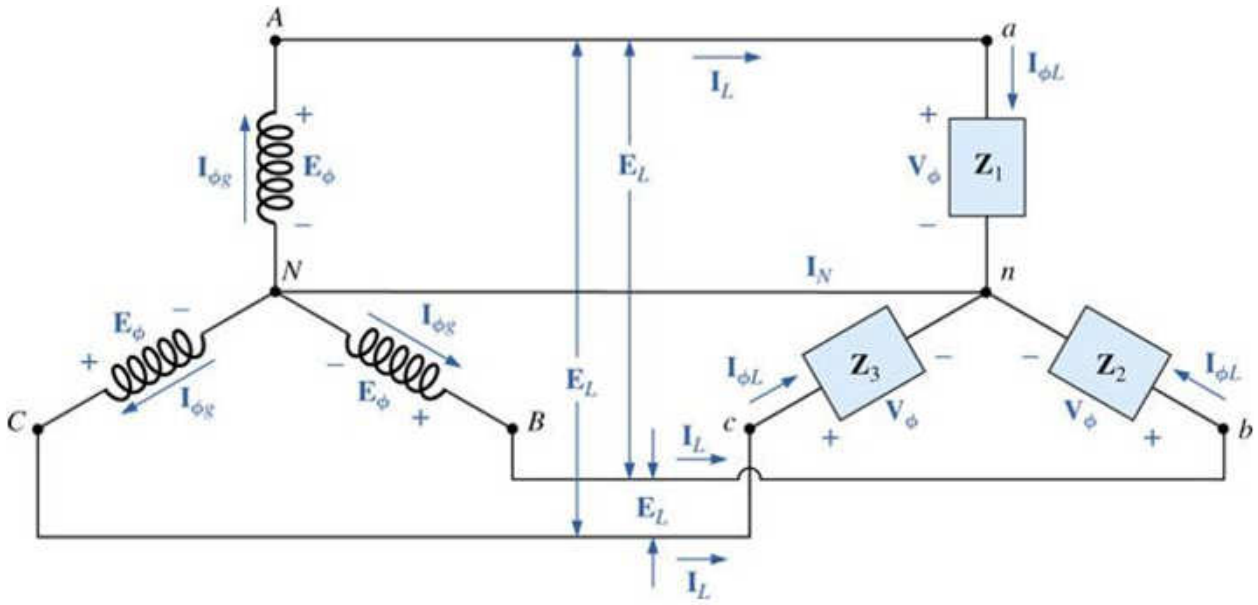


Image used courtesy of the textbook, *Introductory Circuit Analysis, 13th Edition, Robert L. Boylestad.*

79. The Y-connected generator has a phase voltage of 240 Vrms. If each load is 10 Ω, calculate the following:

a. Phase voltage of the load
b. Line voltage
c. Line current

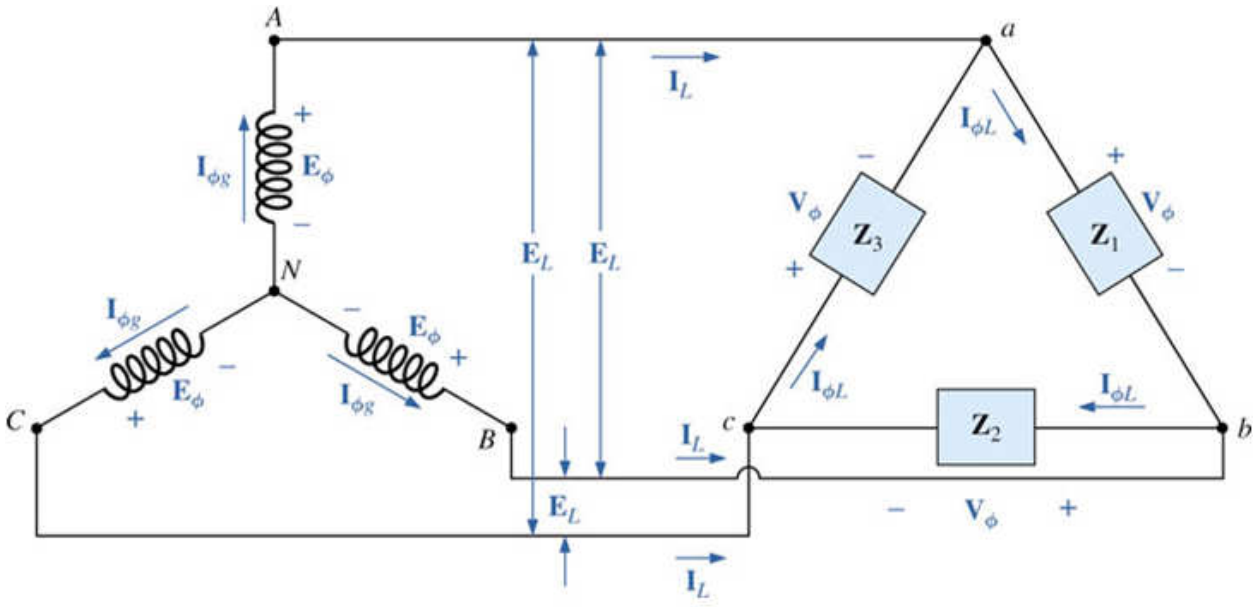


Image used courtesy of the textbook, *Introductory Circuit Analysis, 13th Edition, Robert L. Boylestad.*

80. The Y-connected generator has a phase voltage of 240 Vrms. If each load is 10 Ω, calculate the following:

a. Phase voltage of the load
b. Line voltage
c. Line current

Changelog:

1. Changed component values on page 1 to make the results more reasonable.
2. Updated answers to #64 to include the actual correct answer
3. Updated answers to #67 to include the actual correct answer
4. Updated answers to #68 to include the actual correct answer