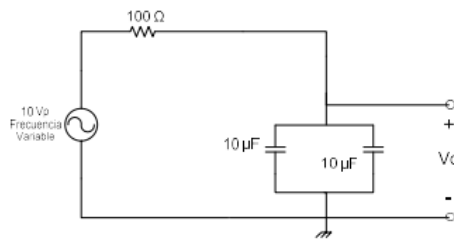


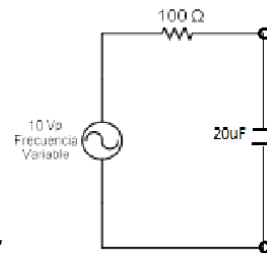
Cálculos:

### Caso 1

Para hallar la Z



$$C_{eq} = 10 + 10 = 20\mu F$$



$$\omega = 2\pi F; Z = \frac{1}{j\omega C}; C = 2 * 10^{-5}$$

Cuando F = 0

$$\omega = 0$$

$$Z = \frac{1}{j(0)(2*10^{-5})} = error$$

R: el capacitor se comporta como un circuito abierto

Cuando F = 10

$$\omega = 20\pi$$

$$Z = \frac{1}{j(20\pi)(2*10^{-5})} = -795.77j$$

Cuando F = 50

$$\omega = 100\pi$$

$$Z = \frac{1}{j(100\pi)(2*10^{-5})} = -159.15j$$

Cuando F = 100

$$\omega = 200\pi$$

$$Z = \frac{1}{j(200\pi)(2*10^{-5})} = -79.57j$$

Cuando F = 500

$$\omega = 1000\pi$$

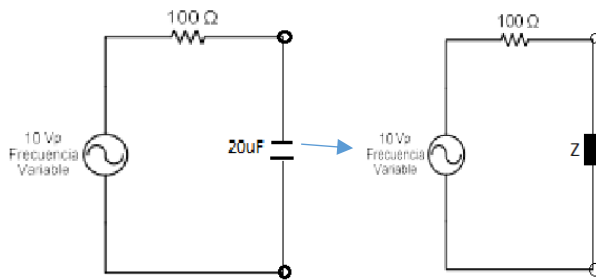
$$Z = \frac{1}{j(1000\pi)(2*10^{-5})} = -15.92j$$

Cuando F = 1000

$$\omega = 2000\pi$$

$$Z = \frac{1}{j(2000\pi)(2*10^{-5})} = -7.96j$$

Para hallar el V e I



$$V = V_p \frac{Z}{R+Z}; I = \frac{V_p}{R+Z}$$

Cuando F = 10

$$V = (10 \angle 0) \frac{-795.77j}{100 - 795.77j} = 9.84 - 1.23j = 9.92 \angle -7.16$$

$$I = \frac{10 \angle 0}{100 - 795.77j} = 0.012 \angle 82.83 = 0.00155 + 0.012j$$

Cuando F = 50

$$V = (10 \angle 0) \frac{-159.15j}{100 - 159.15j} = 7.169 - 4.50j = 8.467 \angle -32.14$$

$$I = \frac{10 \angle 0}{100 - 159.15j} = 0.53 \angle 57.85 = 0.028 + 0.04j$$

Cuando F = 100

$$V = (10 \angle 0) \frac{-79.57j}{100 - 79.57j} = 3.87 - 4.87j = 6.22 \angle -51.49$$

$$I = \frac{10 \angle 0}{100 - 79.57j} = 0.078 \angle 38.5 = 0.061 + 0.048j$$

Cuando F = 500

$$V = (10 \angle 0) \frac{-15.92j}{100 - 15.92j} = 0.247 - 1.552j = 1.57 \angle -80.95$$

$$I = \frac{10 \angle 0}{100 - 15.92j} = 0.098 \angle 9.04 = 0.097 + 0.015j$$

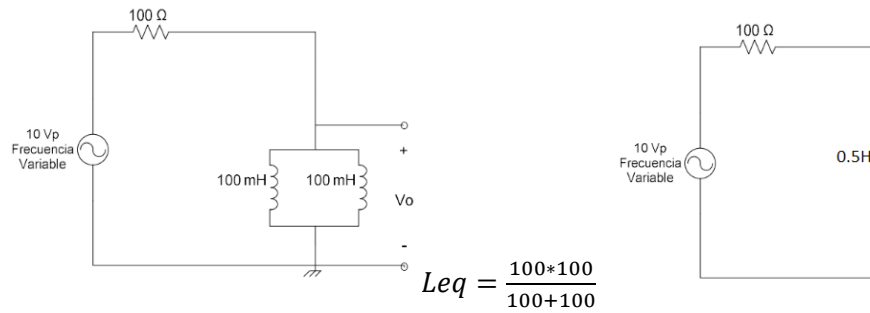
Cuando F = 1000

$$V = (10 \angle 0) \frac{-7.96j}{100 - 7.96j} = 0.063 - 0.79j = 0.7934 \angle -85.44$$

$$I = \frac{10 \angle 0}{100 - 7.96j} = 0.099 \angle 4.53 = 0.099 + 0.00782j$$

## Caso 2

Para hallar la Z



$$\omega = 2\pi F ; Z = j \omega L$$

Cuando F = 0

$$\omega = 0$$

$$Z = j (0)(0.5) = 0$$

Cuando F = 10

$$\omega = 20\pi$$

$$Z = j (20\pi)(0.5) = \pi j$$

Cuando F = 50

$$\omega = 100\pi$$

$$Z = j (100\pi)(0.5) = 15.71j$$

Cuando F = 100

$$\omega = 200\pi$$

$$Z = j (200\pi)(0.5) = 31.42j$$

Cuando F = 500

$$\omega = 1000\pi$$

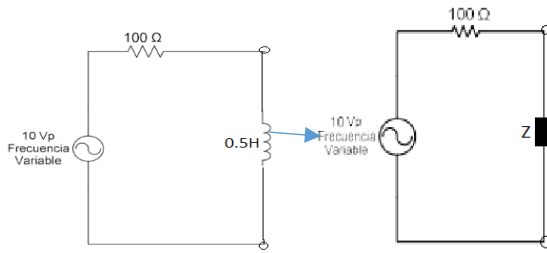
$$Z = j (1000\pi)(0.5) = 157.08j$$

Cuando F = 1000

$$\omega = 2000\pi$$

$$Z = j (2000\pi)(0.5) = 314.16j$$

Para hallar el V e I



$$V = V_p \frac{Z}{R+Z}; I = \frac{V_p}{R+Z}$$

Cuando F = 10

$$V = 0$$

$$I = \frac{10 < 0}{100 - 0} = 0.1 = 0.1 < 0$$

Cuando F = 10

$$V = (10 < 0) \frac{\pi j}{100 + \pi j} = 0.0099 + 0.3138j = 0.314 < 88.20$$

$$I = \frac{10 < 0}{100 + \pi j} = 0.099 < -1.79 = 0.099 - 0.0031j$$

Cuando F = 50

$$V = (10 < 0) \frac{15.71j}{100 + 15.71j} = 0.24 + 1.53j = 1.551 < 81.07$$

$$I = \frac{10 < 0}{100 + 15.71j} = 0.0987 < -8.92 = 0.98 - 0.153j$$

Cuando F = 100

$$V = (10 < 0) \frac{31.42j}{100 + 31.42j} = 0.89 + 2.85j = 2.99 < 72.55$$

$$I = \frac{10 < 0}{100 + 31.42j} = 0.095 < -17.44 = 0.091 - 0.0285j$$

Cuando F = 500

$$V = (10 < 0) \frac{157.08j}{100 + 157.08j} = 7.11 + 4.53j = 8.43 < 32.48$$

$$I = \frac{10 < 0}{100 + 157.08j} = 0.053 < -57.51 = 0.028 - 0.044j$$

Cuando F = 1000

$$V = (10 < 0) \frac{314.16j}{100 + 314.16j} = 9.08 + 2.89j = 9.52 < 17.65$$

$$I = \frac{10 < 0}{100 + 314.16j} = 0.03 < -72.34 = 0.0091 - 0.029j$$