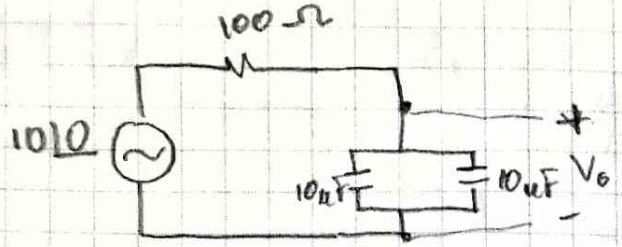
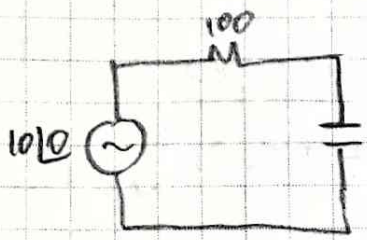
Caso 1





F = 0
10
50
100
500
1000

Hz = 10
20uF → 2.0×10^{-5}

Capacitor
$\frac{1}{jwC}$

$= \frac{1}{j(20\pi)(2.0\times10^{-5})}$

$= -795.77j$

$w = 2\pi F$
$w = 2\pi(10)$
$w = 20\pi$

F = 50 Hz

$w = 2\pi F$
$w = 2\pi(50)$
$= 100\pi$

$= \frac{1}{j(100\pi)(2.0\times10^{-5})}$

$= -159.15j$

F = 100 Hz

$w = 2\pi F$
$= 2\pi(100)$
$w = 200\pi$

$= \frac{1}{j(200\pi)(2.0\times10^{-5})}$

$= -79.57j$ //

F = 500 Hz $w = 1000\pi$

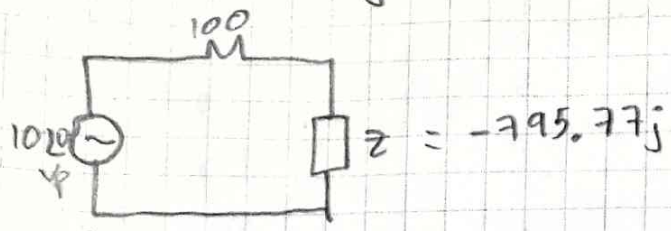
$= -15.92j$

F = 1000 Hz $w = 2000\pi$

$= -7.96j$

Para hallar el voltaje pico se multiplica por $\sqrt{2}$ porque me da el valor eficaz.

Divisor de voltaje



$F = 10Hz$

$Z = -795.77j$

$$V = \frac{-795.77j}{100 - 795.77j} \cdot 10\angle 0$$

$$V = 9.84 - 1.23j$$

$$V = 9.92 \angle -7.16$$

$$I = \frac{V}{R}$$

$$= \frac{10\angle 0}{100 - 795.77j}$$

$$I = 0.012 \angle 82.83$$

$$I = 0.00155 + 0.012j$$

0.0

$F = 50Hz$

$Z = -159.15j$

$$V = \frac{-159.15j}{100 - 159.15j} \cdot 10\angle 0$$

$$V = 7.169 - 4.50j$$

$$V = 8.467 \angle -32.14$$

$$I = \frac{10\angle 0}{100 - 159.15j}$$

$$I = 0.028 + 0.04j$$

$$I = 0.053 \angle 57.85$$

0.03

$F = 100Hz$

$Z = -79.57j$

$$V = \frac{-79.57j}{100 - 79.57j} \cdot 10\angle 0$$

$$V = 3.87 - 4.87j$$

$$V = 6.22 \angle -51.49$$

$$I = \frac{10\angle 0}{100 - 79.57j}$$

$$I = 0.078 \angle 38.50$$

$$I = 0.061 + 0.048j$$

0.05

$F = 500Hz$

$Z = -15.92j$

$$V = \frac{-15.92j}{100 - 15.92j} \cdot 10\angle 0$$

$$V = 0.247 - 1.552j$$

$$V = 1.57 \angle -80.95$$

0.07

VERNAZA

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

$$= 0.098 \angle 9.09$$

$F = 1000Hz$

$Z = -7.96j$

$$V = \frac{-7.96j}{100 - 7.96j} \cdot 10\angle 0$$

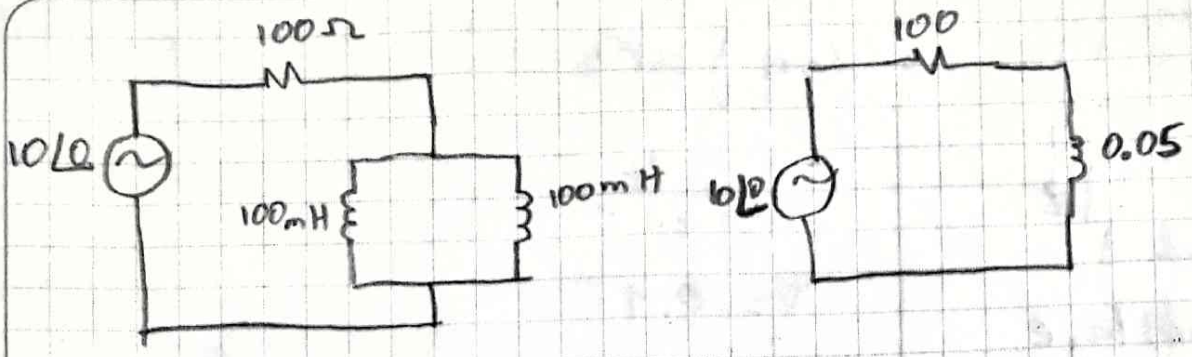
$$V = 0.063 - 0.79j$$

$$V = 0.7934 \angle -85.44$$

0.07

$$I = \frac{10\angle 0}{100 - 7.96j} = 0.099 \angle 4.55$$

Caso 2



F: 0 W
10
50
100
500
1000

$m \rightarrow jwL$ $= jwL$

F = 0 $= j0(0.05)$

w = 0

F = 10 $w = 2\pi F$

$w = 20\pi$

$= jwL$

$= j(20\pi)(0.05) = \pi j$

F = 50 $w\ 100\pi$

$= jwL$

$= j(100\pi)(0.05) = 15.707j$

F = 100 $w = 200\pi$

$= jwL$

$= j(200\pi)(0.05)j = 31.42j$

F = 500 $w = 1000\pi$

$= jwL$

$= j(1000\pi)(0.05)j$

$= 157.079j$

---

f = 1000 $w = 2000\pi$

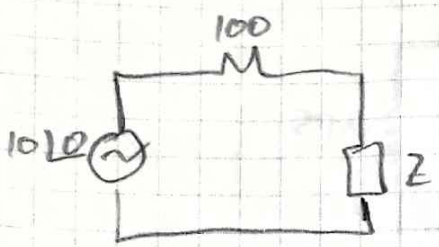
$= jwL$

$= j(2000\pi)(0.05)j$

$= 314.159j$

Capacit react = $\frac{1}{2\pi C}$

inductor = $X = wL$



Divisor de voltaje

F=0 Z=0

V=0

Con F=0

$I = \frac{10 \angle 0}{100+0}$

I = 0.1

0

F=10 Z=πj

$V = \frac{\pi j}{100+\pi j} \cdot 10 \angle 0$

V = 0.00985 + 0.3138j

V = 0.314 ∠88.20

0.22

$I = \frac{10 \angle 0}{100+\pi j}$

I = 0.099 ∠-1.79

0.07

F=50 Z=15.707j

$V = \frac{15.707j}{100+15.707j} \cdot 10 \angle 0$

V = 0.24 + 1.53j

V = 1.551 ∠81.07

1.11

$I = \frac{10 \angle 0}{100+15.707j}$

I = 0.0987 ∠-8.92

0.07

F=100 Z=31.42j

$V = \frac{31.42j}{100+31.42j} \cdot 10 \angle 0$

V = 0.89 + 2.85j

V = 2.99 ∠72.55

2.14

$I = \frac{10 \angle 0}{100+31.42j}$

I = 0.095 ∠-17.44

0.06

F=500 Z=157.079j

V = 8.43 ∠32.48

V = 7.11 + 4.53j

5.97

$V = \frac{157.079j}{100+157.079j} \cdot 10 \angle 0$

$I_{VERNAZA} = \frac{10 \angle 0}{100+157.079j} = 0.053 \angle -57.51$

F=1000 Z=314.159j

V = 9.08 + 2.89j

V = 9.52 ∠17.65

6.73

$V = \frac{314.159j}{100+314.159j} \cdot 10 \angle 0$

$I = \frac{10 \angle 0}{100+314.159j} = 0.03 \angle -72.34$