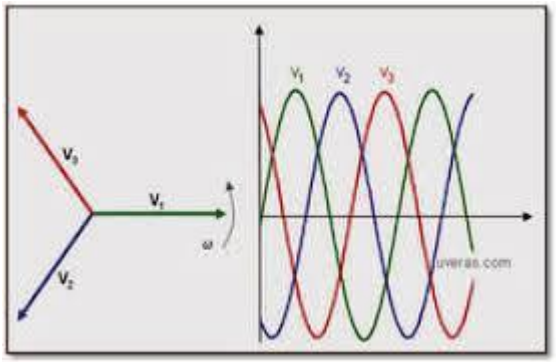
FCEF y N

ELECTROTECNIA Y MAQUINAS ELECTRICAS
INGENIERIA ELECTRONICA

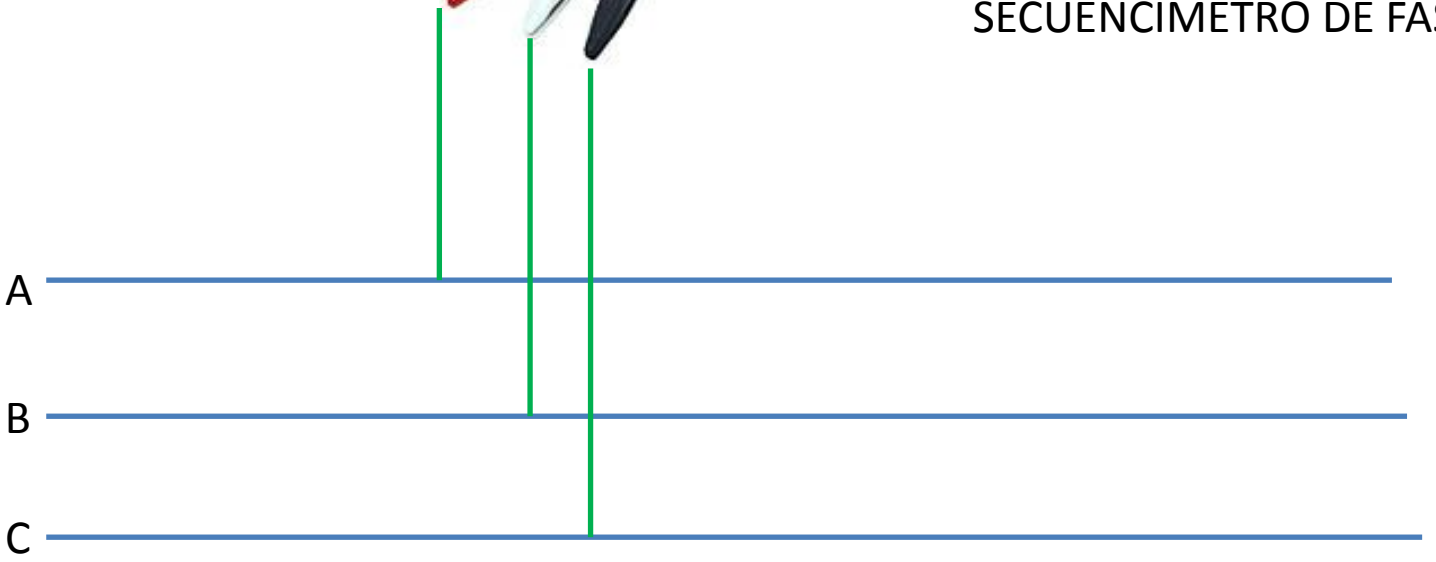
TRABAJO PRACTICO de LABORATORIO Nº1
SISTEMA TRIFASICO EQUILIBRADO

Docente: Ing. Alejandro Giordano

DETERMINACION DE LA SECUENCIA DE FASE



SECUENCIMETRO DE FASE



MEDICIONDE POTENCIA EN SISTEMA TRIFASICO EQUILIBRADO

P_T=$\sqrt{3}* V_L * I_L * cos\ \varphi$ (W)

Q_T=$\sqrt{3}* V_L * I_L * sen\ \varphi$ (VAr)

S_T=$\sqrt{3}* V_L * I_L$ (VA)

METODO DE LOS DOS VATIMETROS

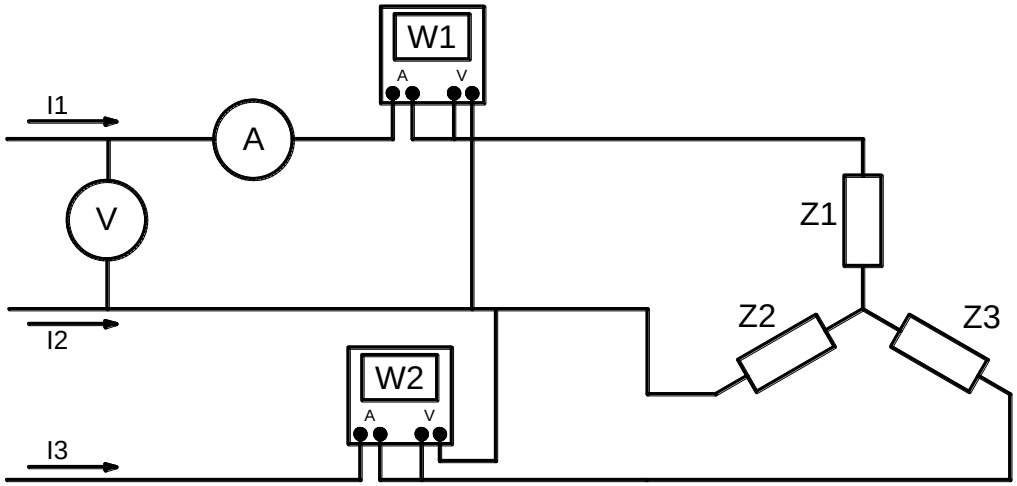
W1+W2 = P_T=$\sqrt{3}* V_L * I_L * COS\ \varphi$

Tg $\varphi = \sqrt{3} * \left(\frac{W2-W1}{W1+W2}\right)$ para secuencia ABC

Tg $\varphi = \sqrt{3} * \left(\frac{W1-W2}{W1+W2}\right)$ para secuencia CBA

CIRCUITO TRIFASICO EQUILIBRADO

Secuencia directa - ABC



CASO 1:

Z1=Z2=Z3 …….. CARGA RESISTIVA PURA : 300 Ohm

CASO 2:

Z1=Z2=Z3 …….. CARGA CAPACITIVA PURA : 360 Ohm

CASO 3:

Z1=Z2=Z3 …….. CARGA INDUCT-RESISTIVA : 86,6+50j Ohm

CASO 1:

Z1=Z2=Z3 …….. CARGA RESISTIVA PURA : 300 Ohm

W1 : 265W

W2 : 265W

A : 0,77 A V : 380VCA

CASO 2:

Z1=Z2=Z3 …….. CARGA CAPACITIVA PURA : 360 Ohm

W1 : -220W (se invierte la polaridad)

W2 : 220W

A: 0,64 A V : 380VCA

CASO 3:

Z1=Z2=Z3 …….. CARGA INDUCT-RESISTIVA : 86,6+50j Ohm

W1 : 916 W

W2 : 458W

A : 2,3 A V : 380VCA

moisan

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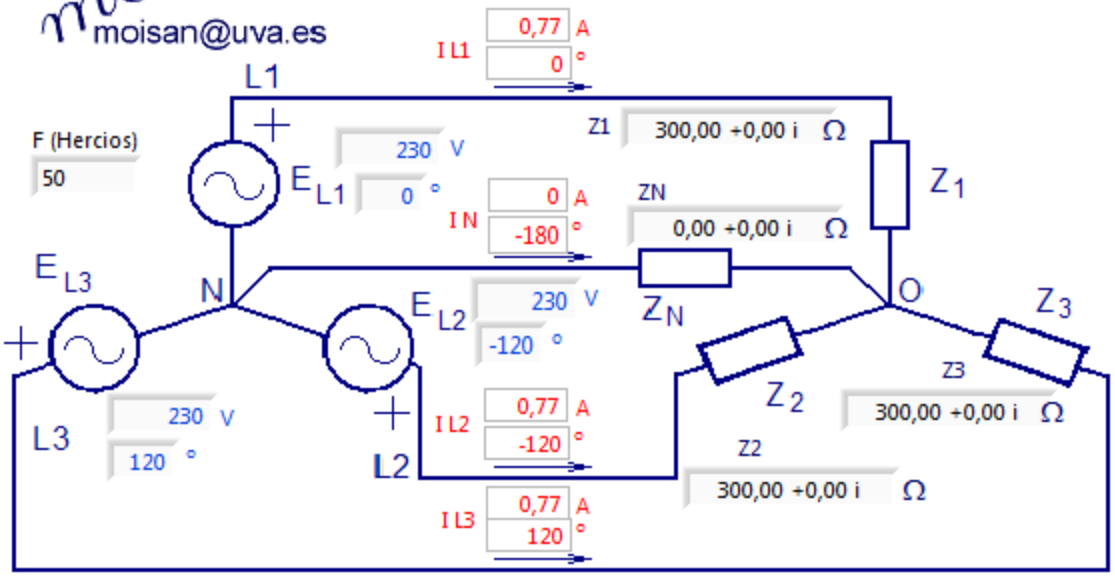
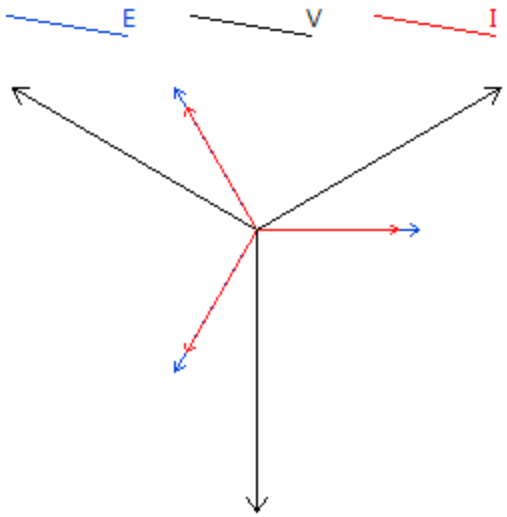
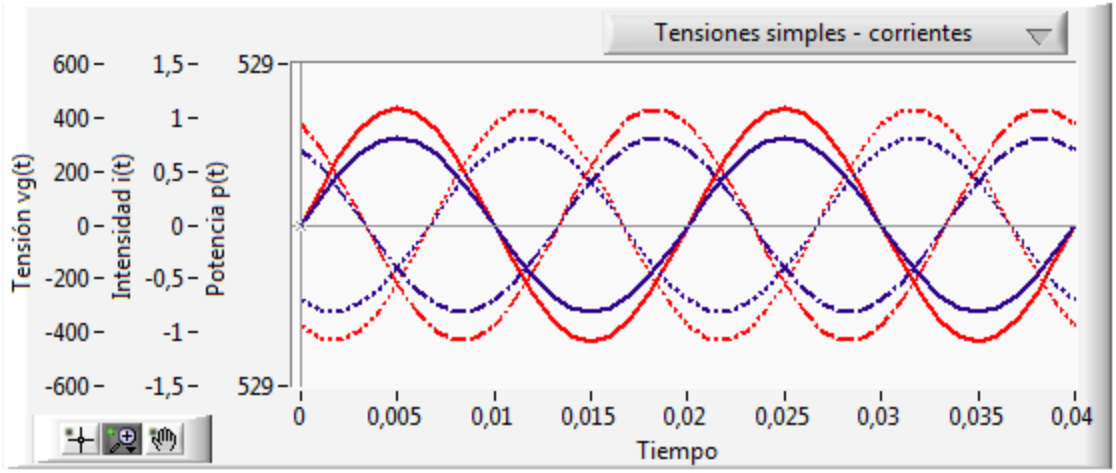
Circuitos trifásicos en estrella

Corriente alterna en WEB Aulamoisan

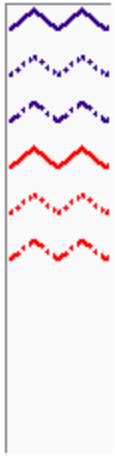
Salir (ESC)







e L1(t)
e L2(t)
e L3(t)
i L1(t)
i L2(t)
i L3(t)
v L1L2(t)
v L2L3(t)
v L3L1(t)
p(t)



Tensiones en la carga

V L1O	230	V	0	°
V L2O	230	V	-120	°
V L3O	230	V	120	°
V NO	0	V	-180	°

Potencia

P	529	W
Q	0	VAr
S	529	VA

Circuitos trifásicos en estrella

Corriente alterna en WEB Aulamoisan

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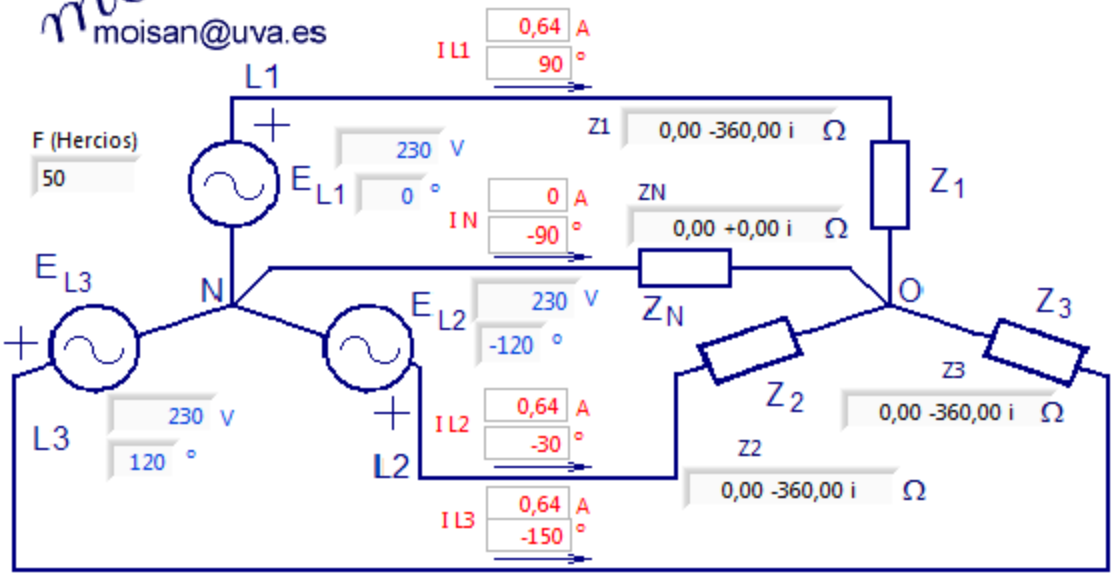
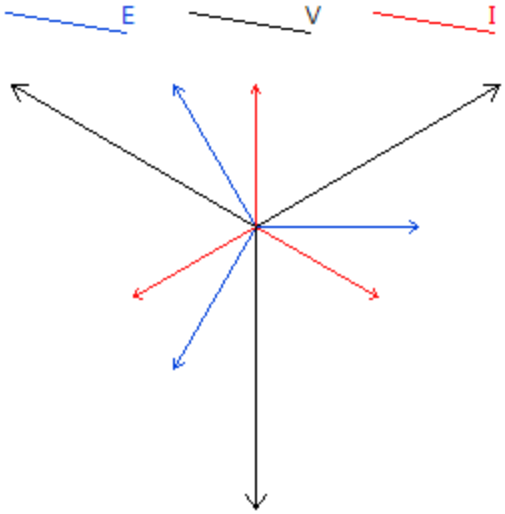
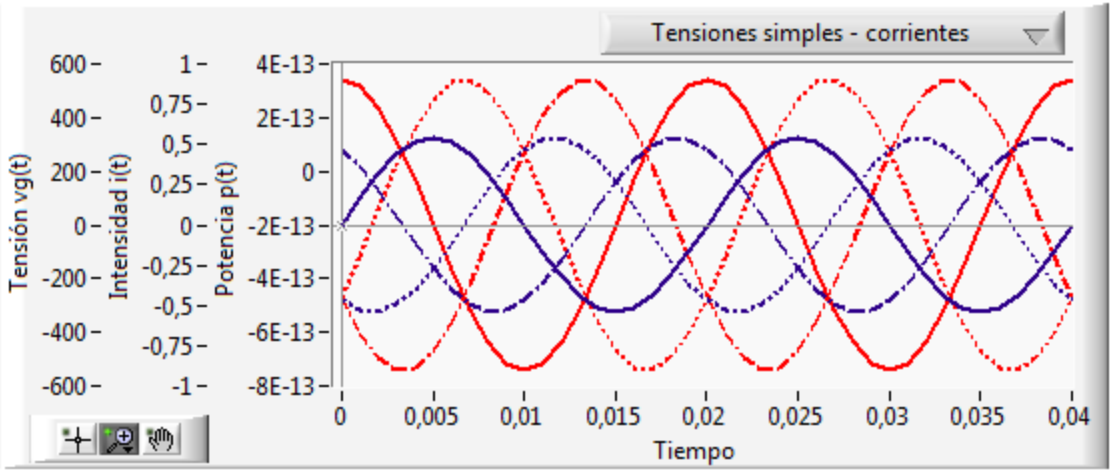
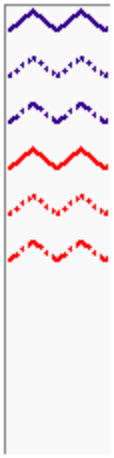
Salir (ESC)







e L1(t)
e L2(t)
e L3(t)
i L1(t)
i L2(t)
i L3(t)
v L1L2(t)
v L2L3(t)
v L3L1(t)
p(t)



Tensiones en la carga

V L1O	230	V	0	°
V L2O	230	V	-120	°
V L3O	230	V	120	°
V NO	0	V	-90	°

Potencia

P	0	W
Q	-440,83	VAr
S	440,83	VA

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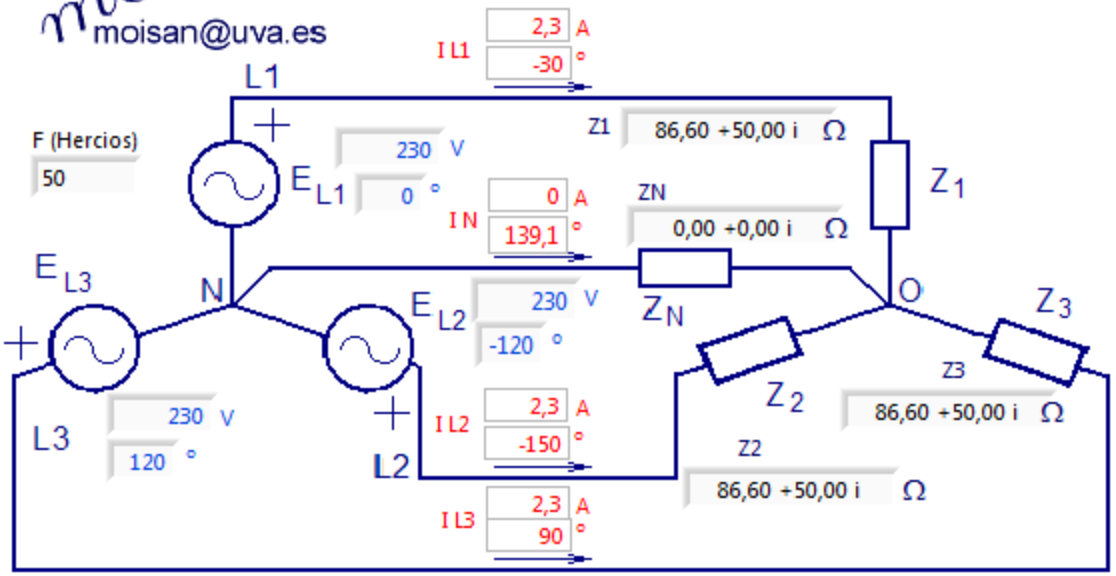
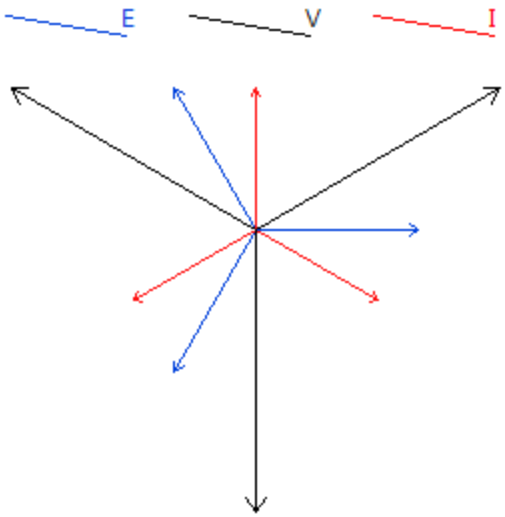
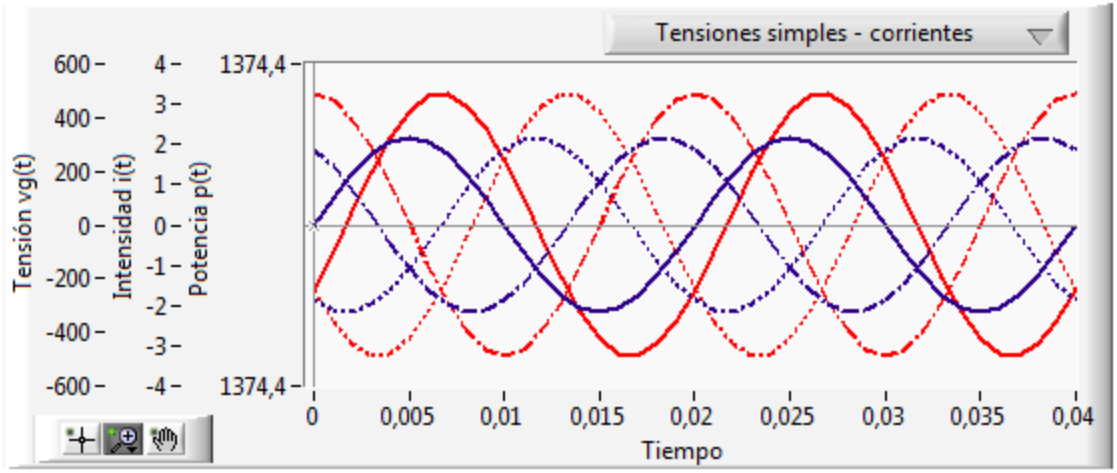
Circuitos trifásicos en estrella

Corriente alterna en WEB Aulamoisan

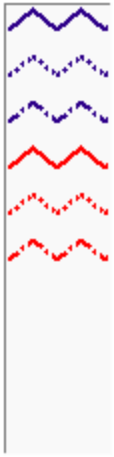
Salir (ESC)







e L1(t)
e L2(t)
e L3(t)
i L1(t)
i L2(t)
i L3(t)
v L1L2(t)
v L2L3(t)
v L3L1(t)
p(t)

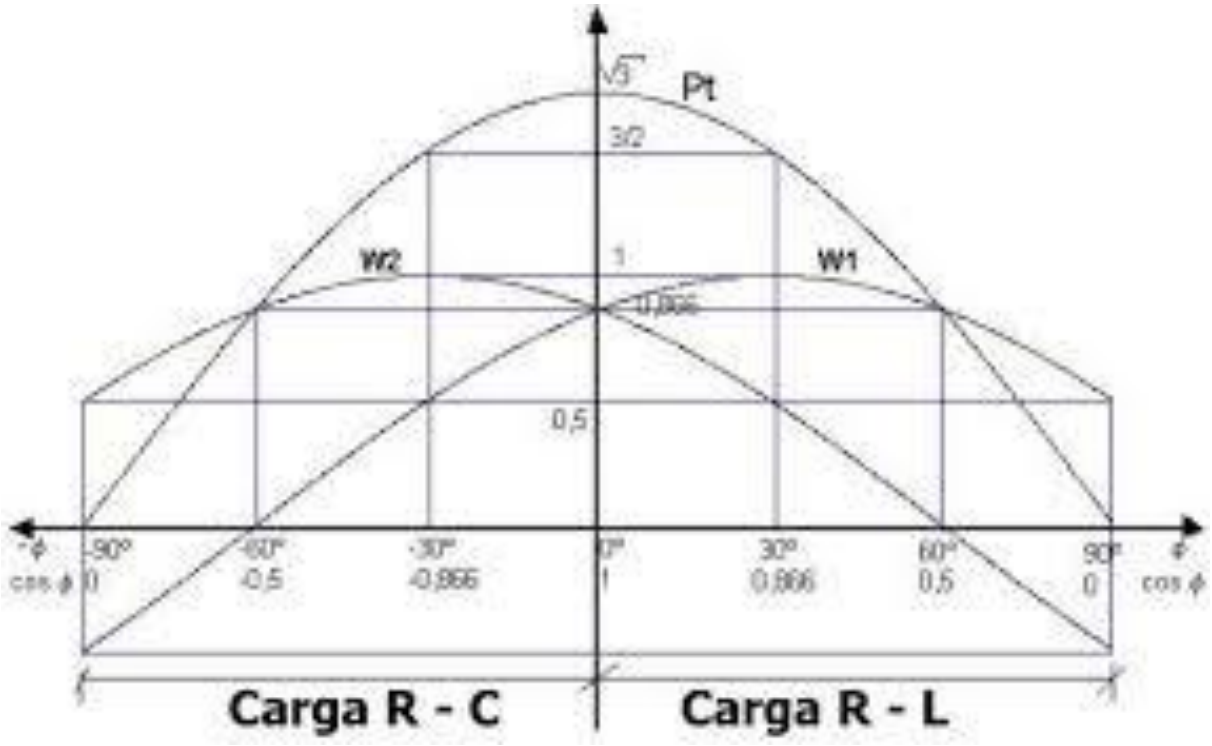


Tensiones en la carga

V L1O	230	V	0	°
V L2O	230	V	-120	°
V L3O	230	V	120	°
V NO	0	V	139,1	°

Potencia

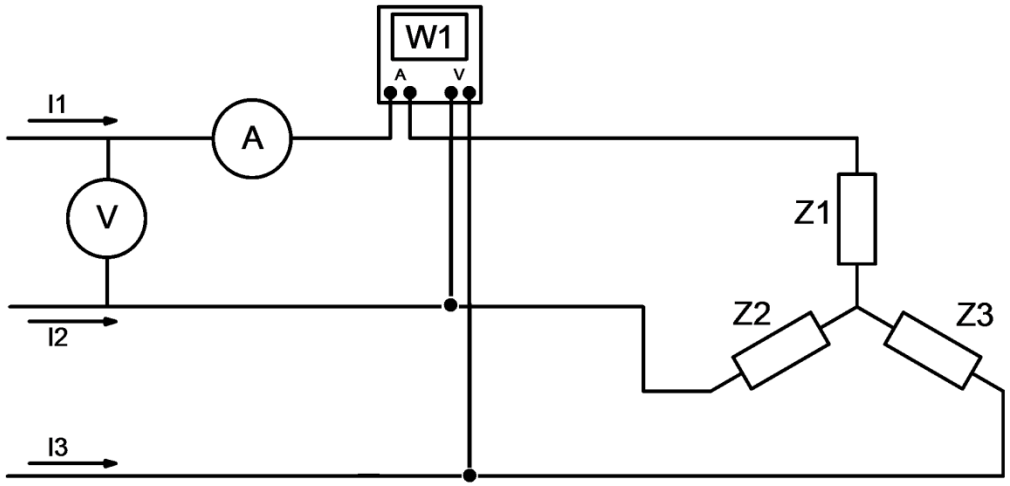
P	1374,4	W
Q	793,53	VAr
S	1587,03	VA



PRACTICO:

Realizar el diagrama vectorial y calcular las potencias P, Q y S para cada caso.

MEDICION DE POTENCIA REACTIVA EN SISTEMA EQUILIBRADO



REALIZAR LA DEMOSTRACION QUE :

$$Q = \sqrt{3} * W1 = \sqrt{3} * V_L * I_L * sen\ \varphi \text{ (VAr)}$$