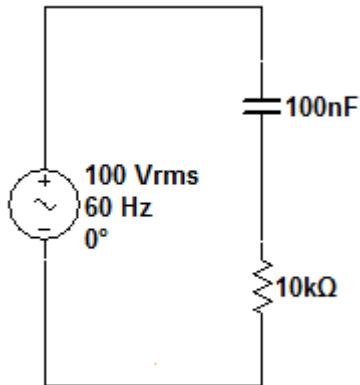


EXERCÍCIOS RESOLVIDOS

1. Calcular a corrente do circuito RC série abaixo, calculado as tensões nos componentes e os ângulos de defasagem:



Primeiramente calcula-se a reatância capacitiva:

$$-jXC = -j \frac{1}{2\pi \cdot F \cdot C} = -j \frac{1}{2\pi \cdot 60 \cdot 100n} = -j26,53k\Omega$$

Então a impedância $Z = 10k - j26,53k\Omega = 28,35k\Omega \angle -69,35^\circ$

Calculando a corrente do circuito:

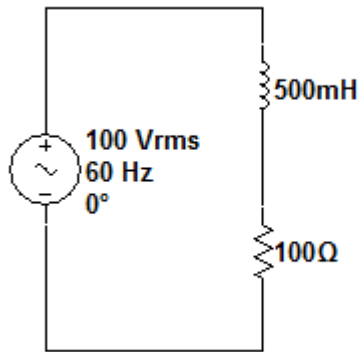
$$I = \frac{100\angle 0^\circ}{28,35k\angle -69,35^\circ} = 3,53mA\angle 69,35^\circ$$

Agora, calculando as tensões nos componentes:

$$V_{R_{ef}} = 3,53m\angle 69,35^\circ \cdot 10k\angle 0^\circ = 35,3V\angle 69,35^\circ$$

$$V_{C_{ef}} = 3,53m\angle 69,35^\circ \cdot 26,53k\angle -90^\circ = 93,65V\angle -20,65^\circ$$

2. Calcular a corrente do circuito RL série abaixo, calculado as tensões nos componentes e os ângulos de defasagem:



$$jXL = j2\pi \cdot 60 \cdot 500m = j188,5\Omega$$

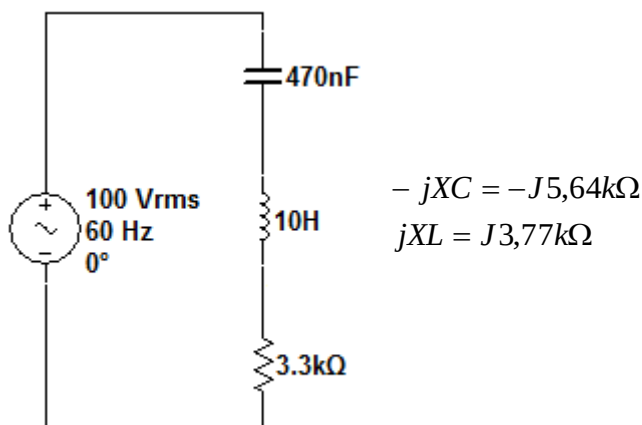
$$Z = 100 + j188,5\Omega = 213,38\angle 62,05^\circ \Omega$$

$$I = \frac{100\angle 0^\circ}{213,38\angle 62,05^\circ} = 468,65m\angle -62,05^\circ A$$

$$V_{Ref} = 468,65m\angle -62,05^\circ \cdot 100\angle 0^\circ = 46,87\angle -62,05^\circ V$$

$$V_{Lef} = 468,65m\angle -62,05^\circ \cdot 188,5\angle 90^\circ = 88,34\angle 27,95^\circ V$$

3. Calcular a corrente do circuito RLC série abaixo, calculado as tensões nos componentes e os ângulos de defasagem:



$$Z = 3,3k - j5,64k + j3,77k = 3,3k - j1,87k\Omega = 3,79k\Omega\angle -29,54^\circ$$

$$I = \frac{100\angle 0^\circ}{3,79k\angle -29,54^\circ} = 26,39mA\angle 29,54^\circ$$

$$V_{Ref} = 26,39m\angle 29,54^\circ \cdot 3,3k\angle 0^\circ = 87,09V\angle 29,54^\circ$$

$$V_{Cef} = 26,39m\angle 29,54^\circ \cdot 5,64k\angle -90^\circ = 148,84V\angle -60,46^\circ$$

$$V_{Lef} = 26,39m\angle 29,54^\circ \cdot 3,77k\angle 90^\circ = 99,49V\angle 119,54^\circ$$