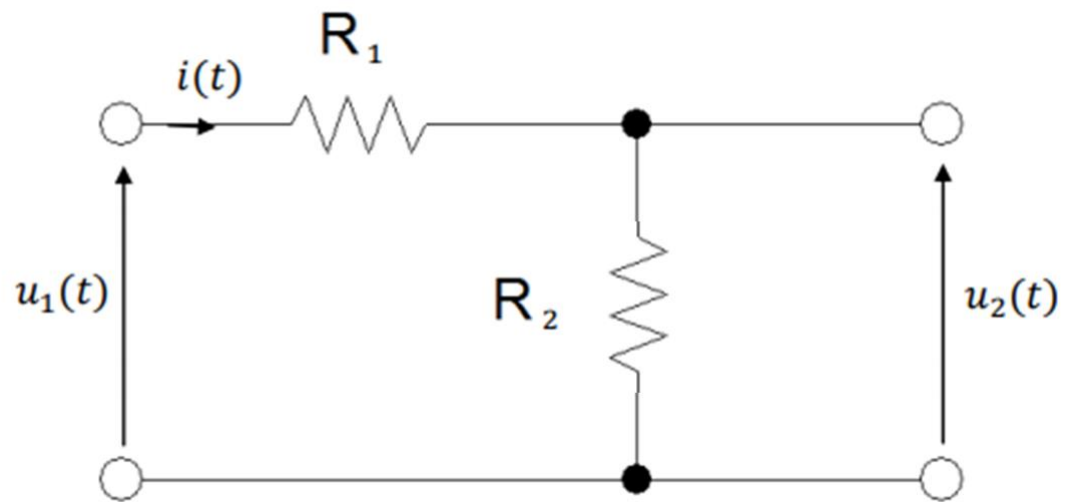
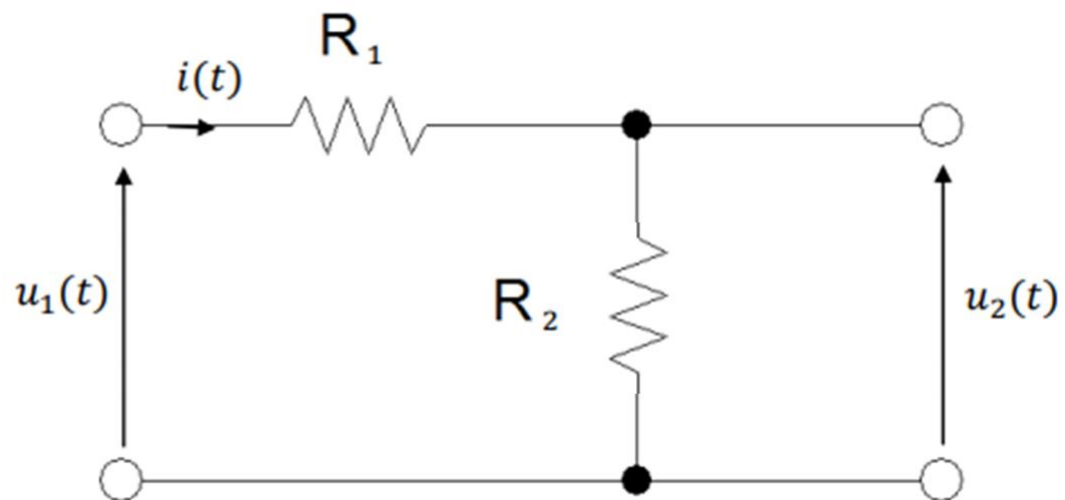


Zadanie 2 – Rozwiązanie



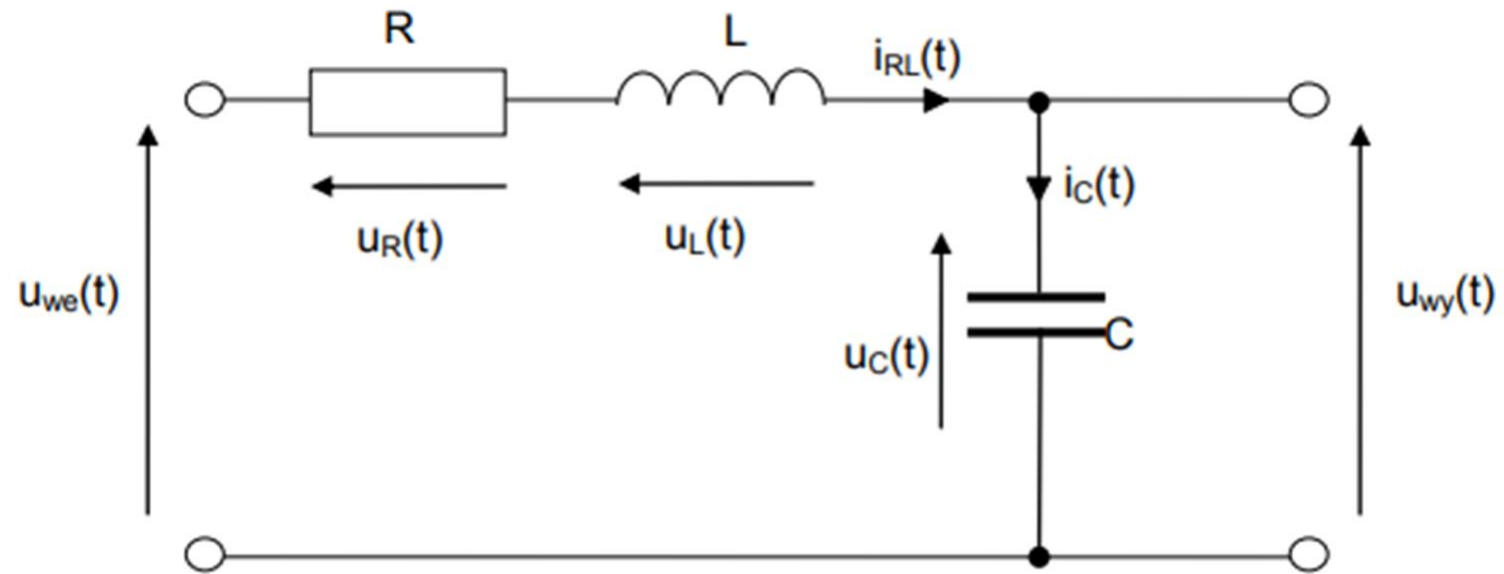
## Zadanie 2 – Rozwiązanie



$$\frac{U_{wy}}{U_{we}} = \frac{R_2}{R_1 + R_2}$$

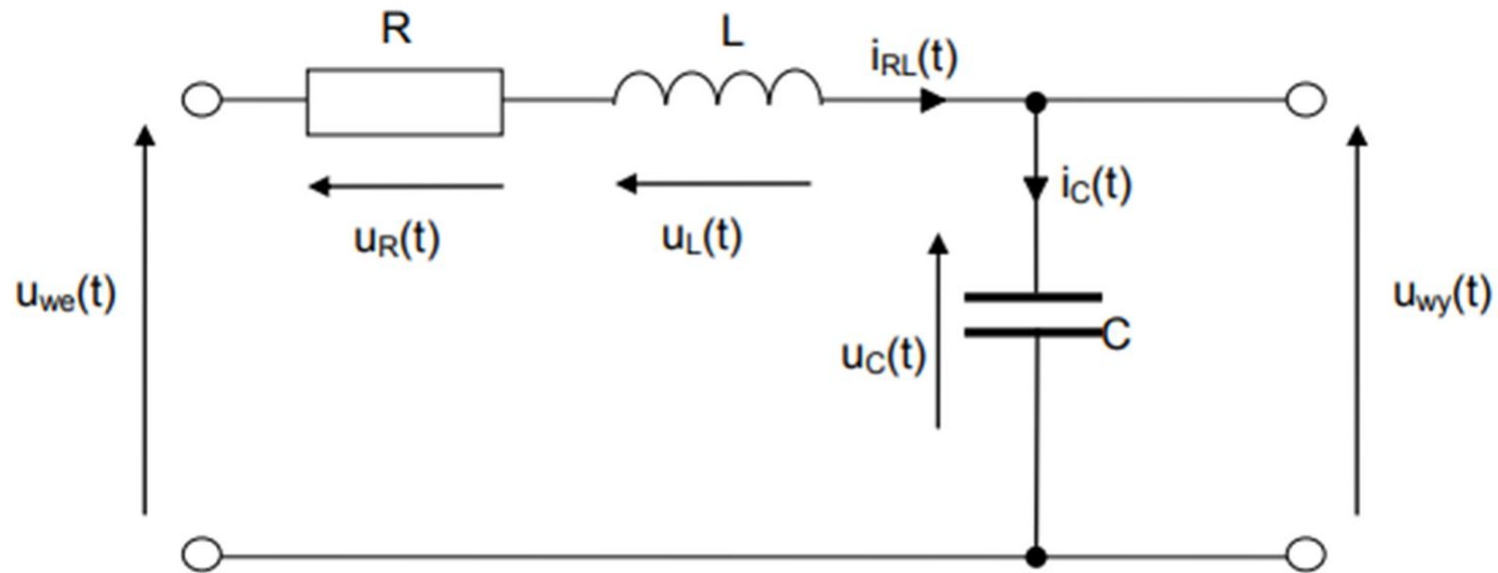
# Zadanie 1

## Zadanie 1

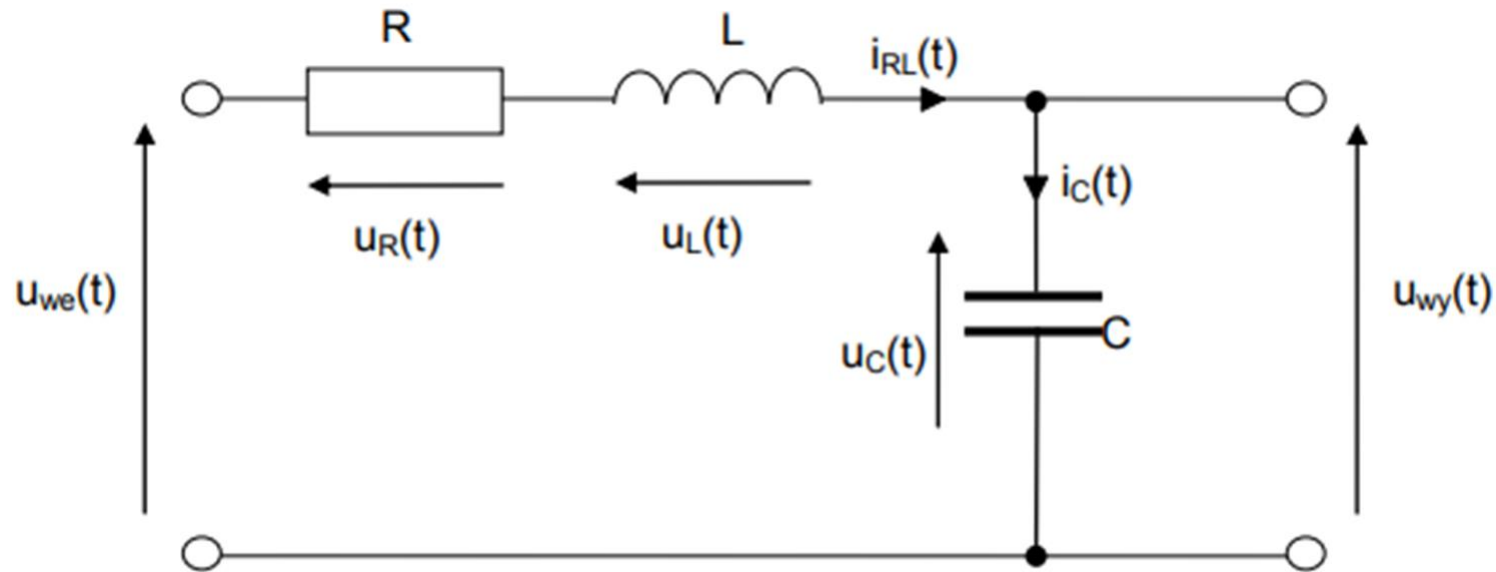


## Podpowiedź 1

$$u_R(t) + u_L(t) + u_C(t) = u_{we}(t)$$

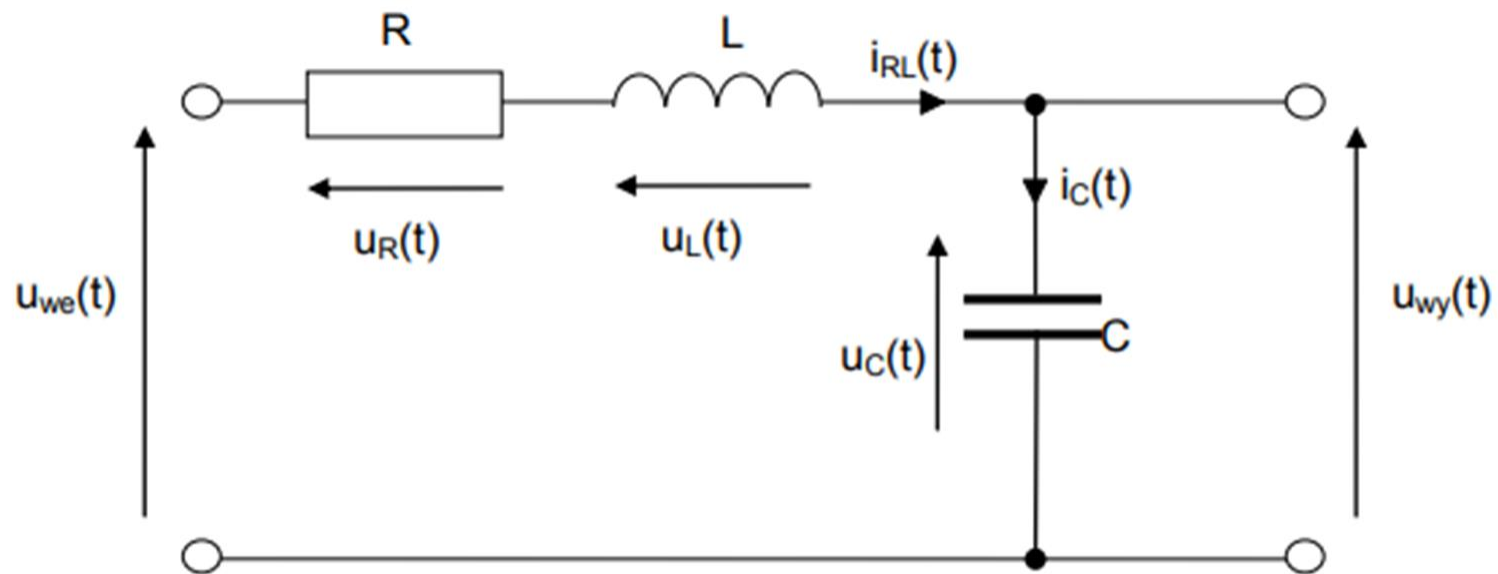


## Podpowiedź 2



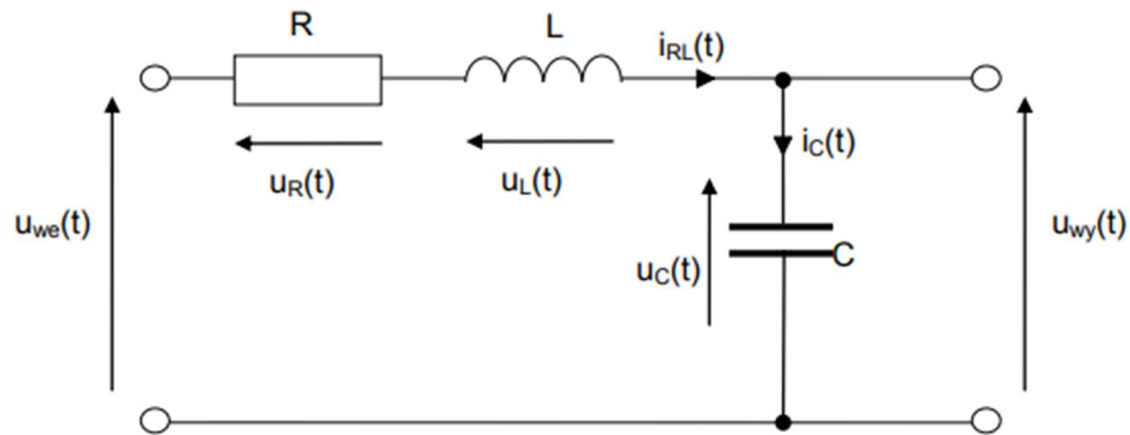
$$\begin{aligned}u_{wy}(t) &= u_C(t) \\u_R(t) &= R \cdot i_{RL}(t) \\u_L(t) &= L \cdot \frac{d}{dt} i_{RL}(t) \\i_C(t) &= C \cdot \frac{d}{dt} u_C(t)\end{aligned}$$

### Podpowiedź 3



$$i_{RL}(t) = i_C(t)$$

## Rozwiązanie



$$R \cdot i_{RL}(t) + L \cdot \frac{d}{dt} i_{RL}(t) + u_C(t) = u_{we}(t)$$



$$R \cdot i_C(t) + L \cdot \frac{d}{dt} i_C(t) + u_{wy}(t) = u_{we}(t)$$



## Rozwiązanie



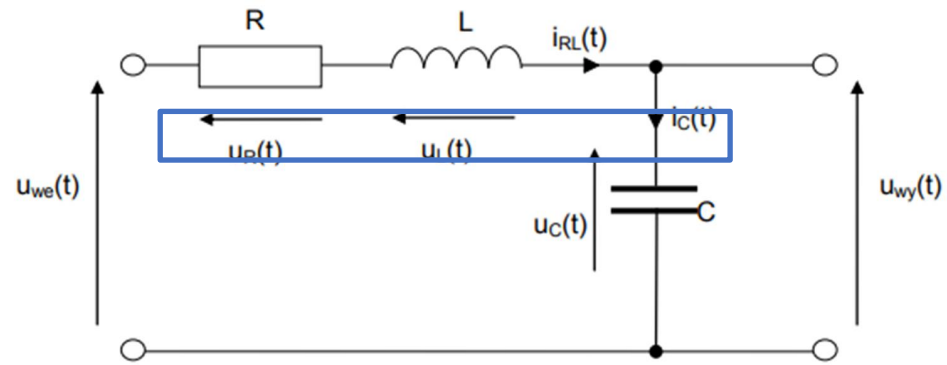
$$R \cdot C \cdot \frac{d}{dt} u_{wy}(t) + L \cdot \frac{d}{dt} \left( C \cdot \frac{d}{dt} u_{wy}(t) \right) + u_{wy}(t) = u_{we}(t)$$



$$R \cdot C \cdot \frac{d}{dt} u_{wy}(t) + L \cdot C \cdot \frac{d^2}{dt^2} u_{wy}(t) + u_{wy}(t) = u_{we}(t)$$

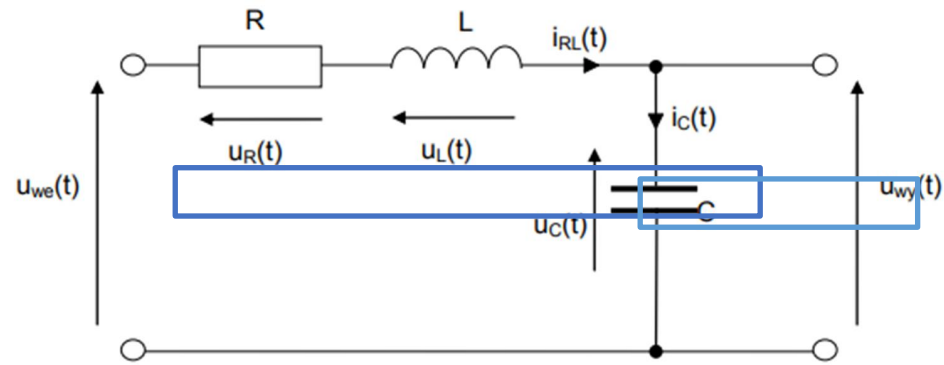
$$R \cdot C \cdot \frac{d}{dt} u_{wy}(t) + L \cdot C \cdot \frac{d^2}{dt^2} u_{wy}(t) + u_{wy}(t) = u_{we}(t)$$

### Zadanie 1



$$Z(s) = R + s \cdot L + \frac{1}{s \cdot C}$$

## Zadanie 1



$$U_2(s) = \frac{\frac{1}{s \cdot C}}{R + \frac{1}{s \cdot C} + s \cdot L} \cdot U_1(s)$$

$$G(s) = \frac{U_2(s)}{U_1(s)} = \frac{1}{s \cdot C} \cdot \frac{1}{R + \frac{1}{s \cdot C} + s \cdot L}$$