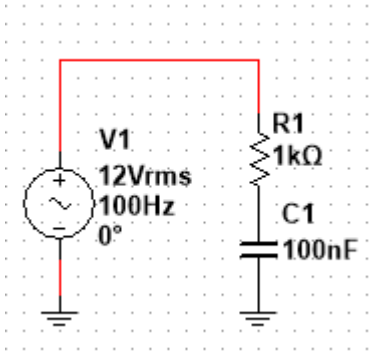
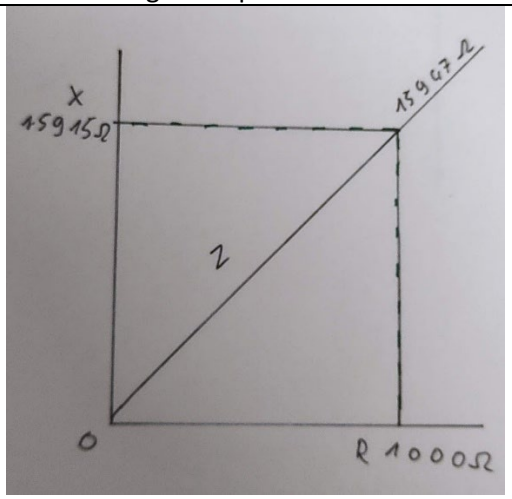
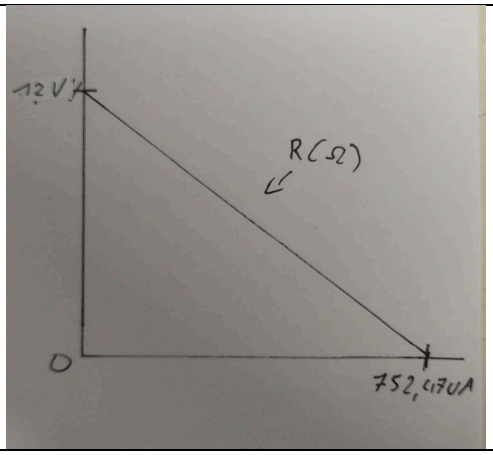
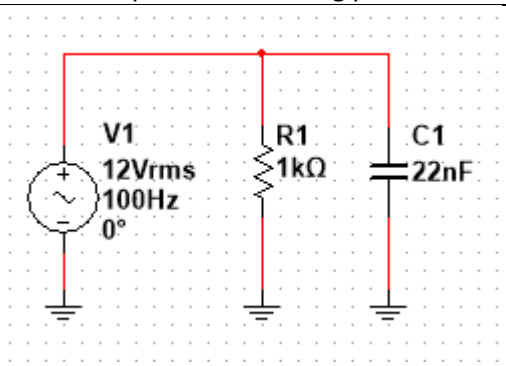
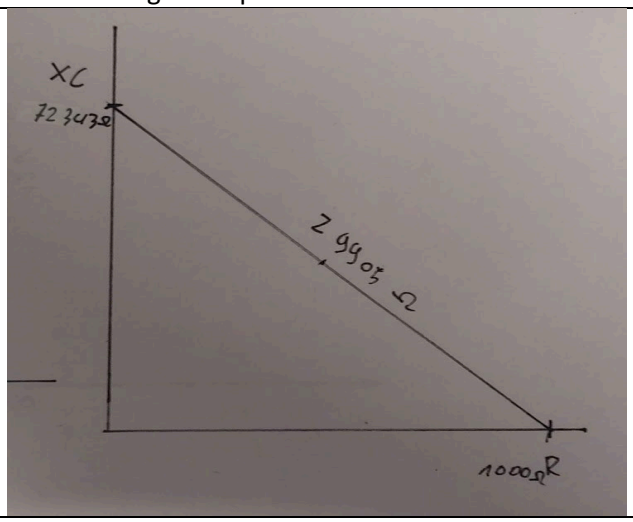
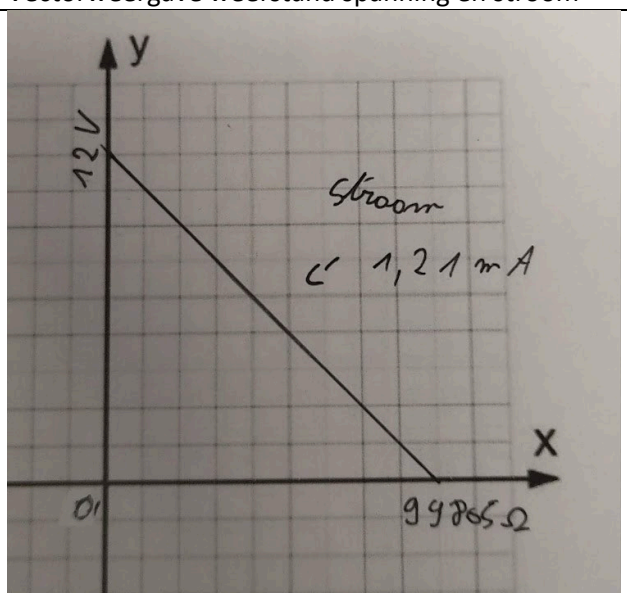
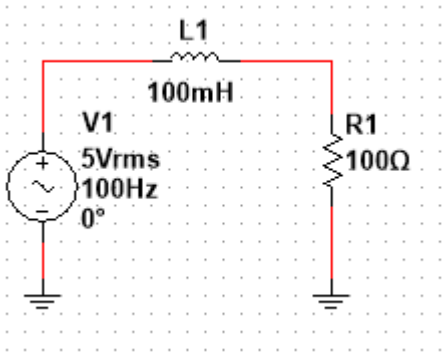
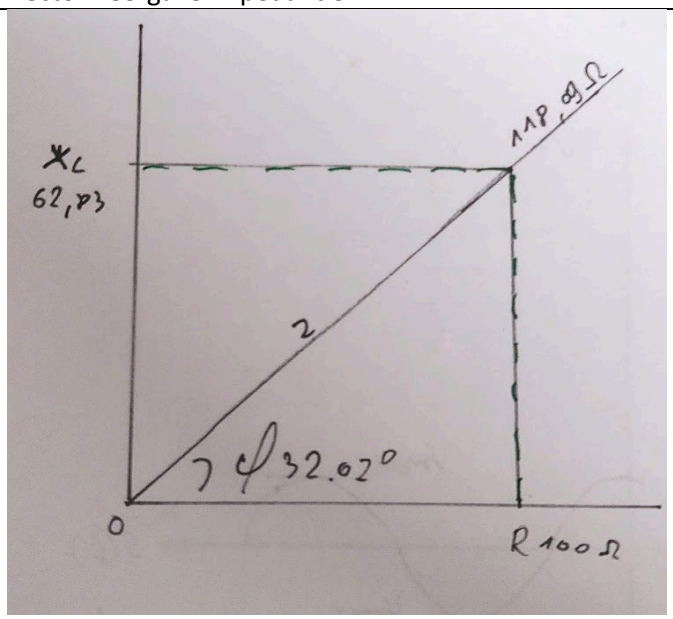
Naam:	Resistor Capacitor schakeling serie
Berekening impedantie: $X_c = \frac{1}{2 * \pi * f * C}$ $X_c = \frac{1}{2 * \pi * 100Hz * 100nF}$ $X_c = 15915.94\Omega$	
Berekening complexe impedantie $Z = \sqrt{X_l^2 + R^2}$ $Z = \sqrt{15915.94^2\Omega + 1000^2\Omega}$ $Z = 15947.32\Omega$	
Berekening faseverschuiving $\varphi = \tan^{-1}(2 * \pi * f * C * R)^{-1}$ $\varphi = \tan^{-1}(\frac{1}{2 * \pi * 100 * 100nF * 1000})$ $\varphi = 1.508rad$ $\varphi = 1.508 * \frac{180}{\pi}$ $\varphi = 86.40°$	Vectorweergave impedantie 
Berekening spanning over C $V_c = V_{in} * \frac{Z}{R + Z}$ $V_c = 12V * \frac{15947.94\Omega}{1000\Omega + 15974.94}$ $V_c = 11.293V$	
Berekening stroom over R1 $I_t = U_{totaal} * Z_{impedantie}$ $I_t = 12V * 15947.32\Omega$ $I_t = 752.477uA$ $I_t = I_{R1} = I_{c1}$ $I_{R1} = 752.477uA$	Vectorweergave spanning en stroom 

Naam:	Resistor Capacitor schakeling parallel
Berekening impedantie: $X_c = \frac{1}{2 * \pi * f * C}$ $X_c = \frac{1}{2 * \pi * 100Hz * 22nF}$ $X_c = 72343.155\Omega$	
Berekening complexe impedantie: $Z = \frac{R}{\sqrt{1 + (R * 2 * \pi * f * C)^2}}$ $Z = \frac{10000\Omega}{\sqrt{1 + (10000\Omega * 2 * \pi * 100Hz * 22nF)^2}}$ $Z = 9905.80\Omega$	
Berekening faseverschuiving $\varphi = \tan^{-1}(2 * \pi * f * C * R)^{-1}$ $\varphi = \tan^{-1}(\frac{1}{2 * \pi * 100Hz * 22nF * 10000})$ $\varphi = 1.433rad$ $\varphi = 1.433 * \frac{180}{\pi}$ $\varphi = 82.129°$	Vectorweergave impedantie 
Berekening stroom over R1 en C1 $I_t = U_{totaal} * Z_{impedantie}$ $I_t = 12V * 9905.80\Omega$ $I_t = 1.211mA$ $I_{R1} = \frac{U}{R}$ $I_{R1} = \frac{12V}{10000\Omega}$ $I_{R1} = 1.2mA$ $I_{R1} = \frac{U}{X_C}$ $I_{R1} = \frac{12V}{72343.15\Omega}$ $I_{R1} = 165.87uA$ $I_t = I_{R1} + I_{c1}$ $I_t \approx 1.2mA + 165.87uA$ $I_t \approx 1.216mA$	Vectorweergave weerstand spanning en stroom 

Naam:	Resistor Inductor schakeling serie
Berekening impedantie: $X_l = 2 * \pi * f * L$ $X_l = 2 * \pi * 100Hz * 100mH$ $X_l = 62.83\Omega$	
Berekening complexe impedantie: $Z = \sqrt{R^2 + X_l^2}$ $Z = \sqrt{100^2\Omega + 62.83^2\Omega}$ $Z = 118.09\ \Omega$	
Berekening faseverschuiving weerstand spoel	Vectorweergave impedantie
$\varphi = \tan^{-1}\left(\frac{V_l}{V_r}\right)\ \varphi = \tan^{-1}\left(\frac{2.63V}{4.2V}\right)\ \varphi = 0.559rad$ $\varphi = 0.559 * \frac{180}{\pi}\ \ \varphi = 32.02°$	
Berekening stroom en spanningen	
$I_t = \frac{U\_bron}{Z}\ I_t = \frac{5V}{118.09\ \Omega}\ I_t = 42mA$ $I_t = I_{R1} = I_l$ $U_R = I_R * R\ \ U_R = 42mA * 100\Omega\ \ U_R = 4.2V$ $U_l = I_l * X_l\ U_l = 42mA * 62.83\Omega\ \ U_l = 2.63V$