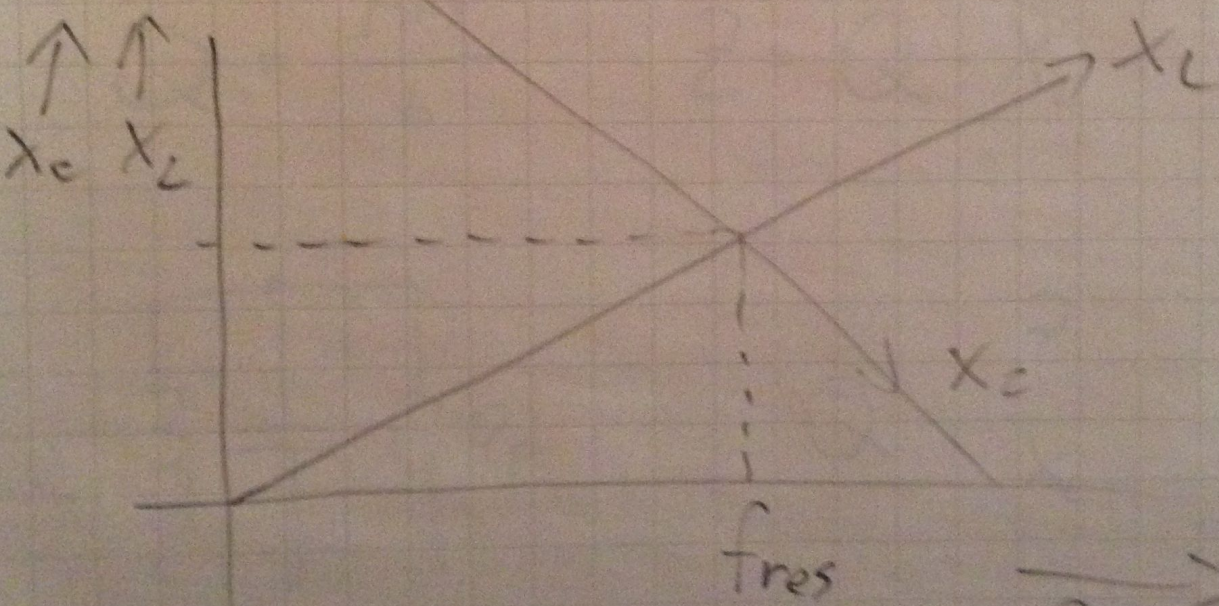


$$X_L = 2\pi \cdot f \cdot L$$

$$X_C = \frac{1}{2\pi \cdot f \cdot C}$$



$$\left[ X_L = X_C \right] \quad \rightarrow \quad \left[ f_{res} = \frac{1}{2\pi \cdot \sqrt{L \cdot C}} \right]$$

$$2\pi \cdot f \cdot L = \frac{1}{2\pi \cdot f \cdot C}$$



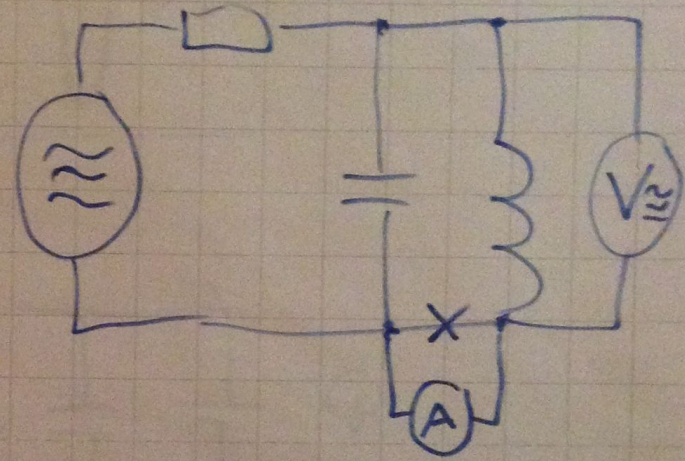
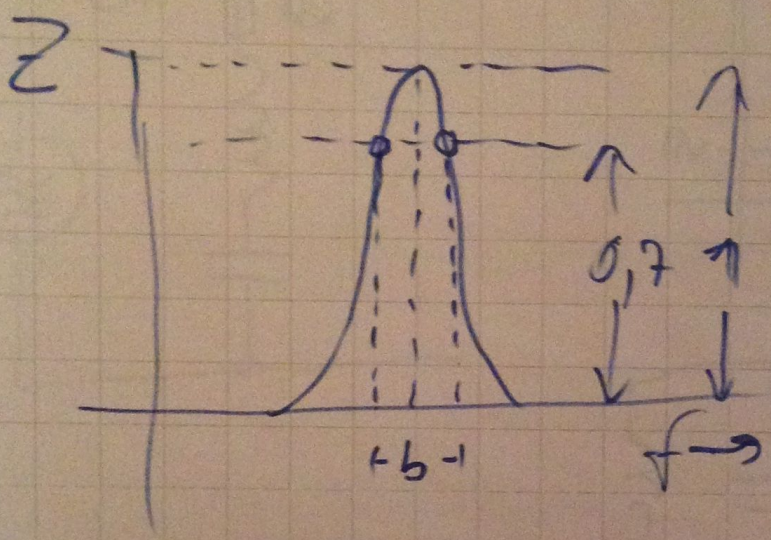
$$f = \frac{1}{2\pi \cdot \sqrt{L \cdot C}}$$

$$C = \frac{1}{\omega^2 \cdot L} \quad L \text{ [H]}$$

$$\omega^2 = (2\pi \cdot f)^2$$

$$L = \frac{1}{\omega^2 \cdot C} \quad C \text{ [F]}$$

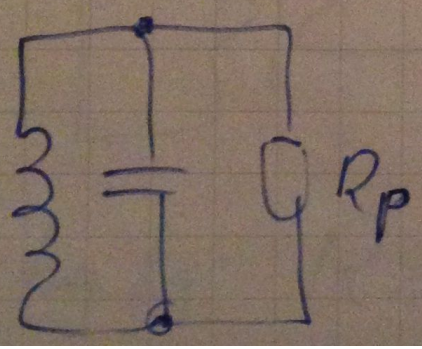
$$f \text{ [Hz]}$$



$$Q = \frac{f_{res}}{b}$$

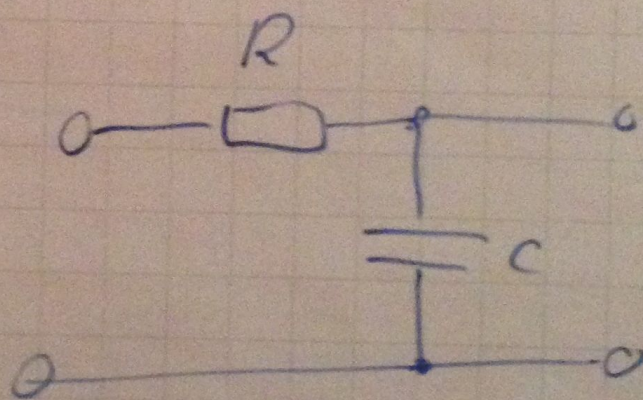
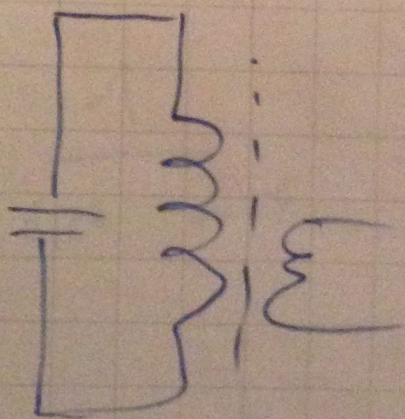
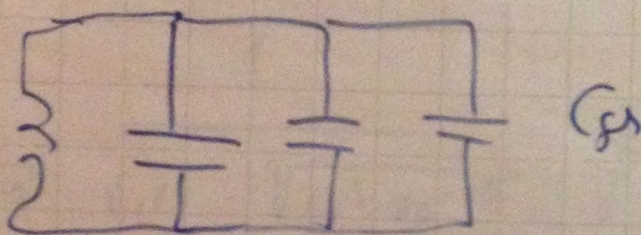
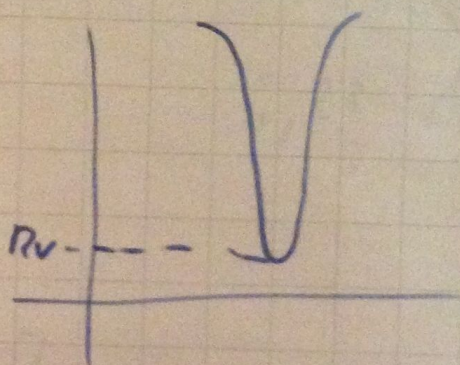
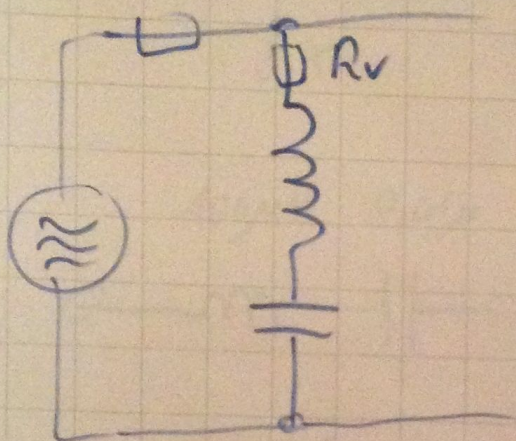
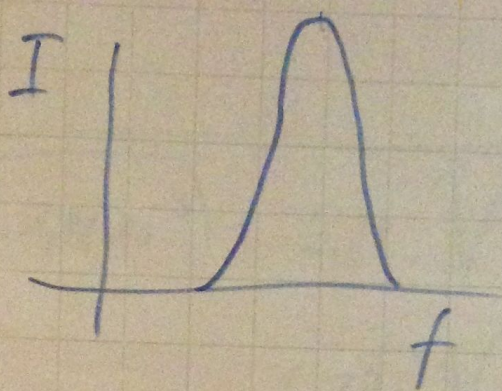
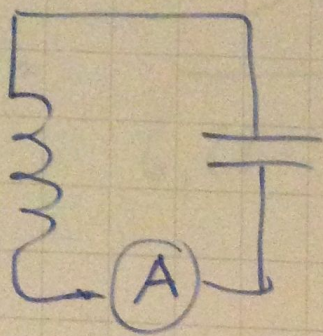
$$Z = Q \cdot X_L$$

$$b = \frac{\Delta f_{res}}{Q}$$



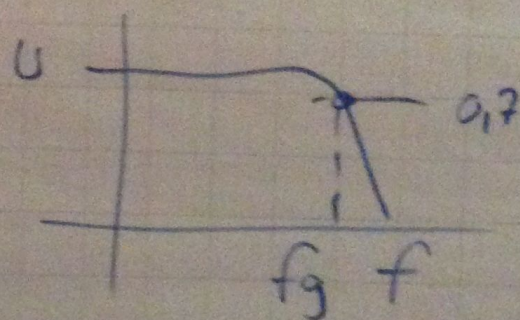
$$Q = \frac{Z}{X_L}$$





bei  $f_g$   $R = X_c$

$$f_g = \frac{1}{2\pi \cdot R \cdot C}$$



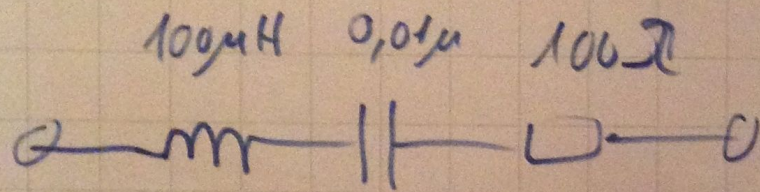
$$\frac{1}{6,28 \cdot 10^4 \cdot 50 \cdot 10^{-9}} = \frac{1}{314 \cdot 10^{-5}} = \frac{1}{314} \cdot 10^5$$



$$f = \frac{1}{8,5 \cdot 10^6} \cdot \frac{1}{6,28 \cdot \sqrt{1 \cdot 10^{-3} \cdot 1,92 \cdot 10^{-9}}}$$

$$6,28 \cdot \sqrt{1,92 \cdot 10^{-12}}$$

$$6,28 \cdot 1,35 \cdot 10^{-6}$$



$$\frac{1}{6,28 \cdot \sqrt{100 \cdot 10^{-6} \cdot 10 \cdot 10^{-9}}}$$

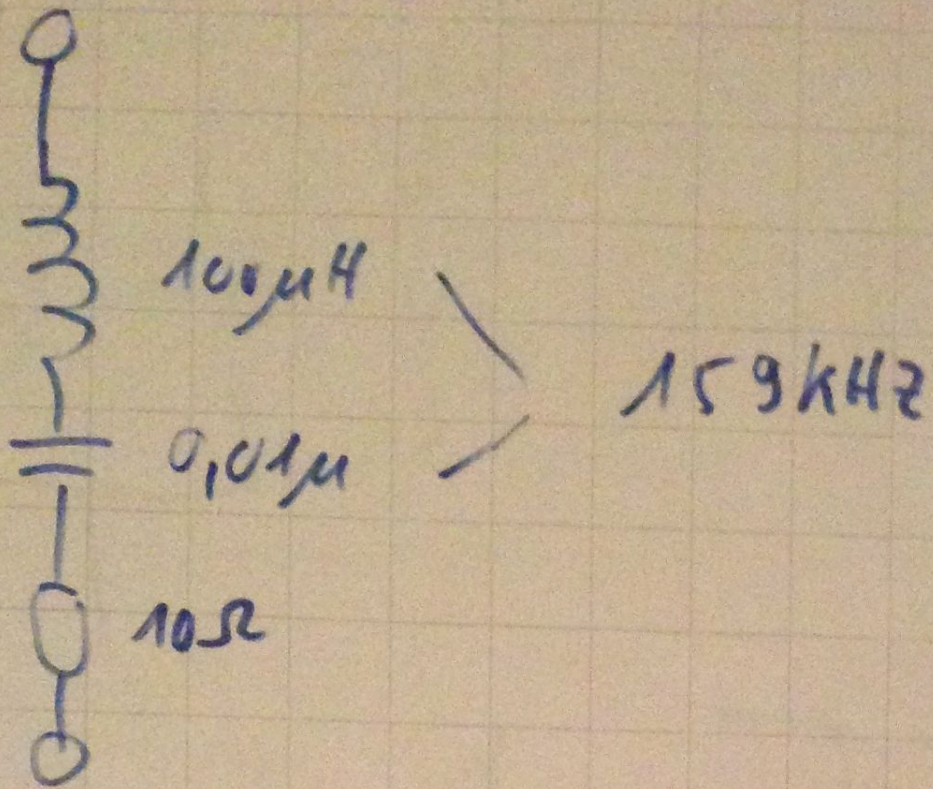
$$\frac{1}{6,28 \cdot \sqrt{10^3 \cdot 10^{-18}}}$$

$$\sqrt{10^{-12}}$$

$$\frac{1}{6,28 \cdot 10^{-6}}$$

$$\frac{10^6}{6,28}$$





$$Q = \frac{X_L}{R}$$

$$X_L = 2\pi \cdot f \cdot L =$$

$$6,28 \cdot 159 \cdot 10^3 \cdot 100 \cdot 10^{-6}$$

$$6,28 \cdot 15900 \cdot 10^{-3} \approx 100$$

$$Q = \frac{100 \Omega}{10 \Omega} = 10$$