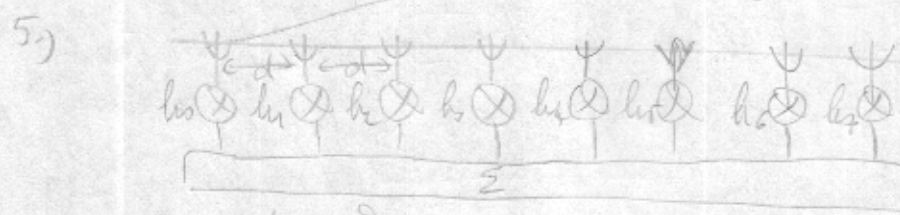
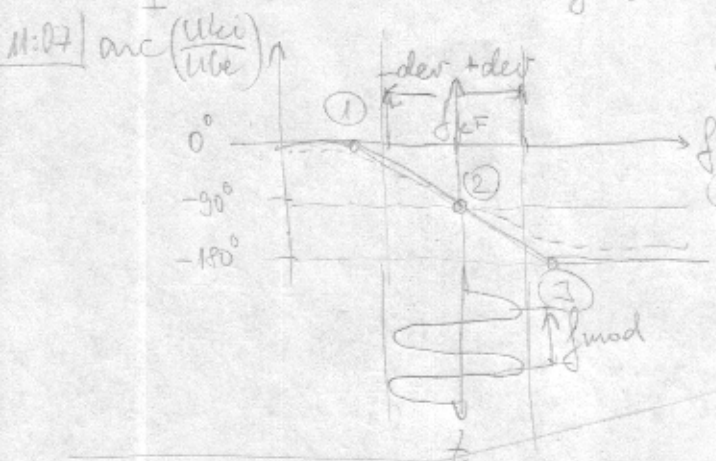


$$\textcircled{1} \cos \alpha \cdot \cos(\alpha + 0^\circ) = \frac{1}{2} \cos(2\alpha + 0) + \frac{1}{2} \cos(0) = +\frac{1}{2}$$

$$\textcircled{2} \cos(\alpha) \cdot \cos(\alpha - 90^\circ) = \frac{1}{2} \cos(2\alpha + 90^\circ) + \frac{1}{2} \cos(-90^\circ) = 0$$

$$\textcircled{3} \cos(\alpha) \cdot \cos(\alpha - 180^\circ) = \frac{1}{2} \cos(2\alpha + 180^\circ) + \frac{1}{2} \cos(-180^\circ) = -\frac{1}{2}$$



$$F(\varphi) = F_e(\varphi) \sum_{k=0}^{n-1} h_k e^{-jk\varphi d \cos \alpha}$$

$$\Delta \Phi = \beta d \cos \alpha$$

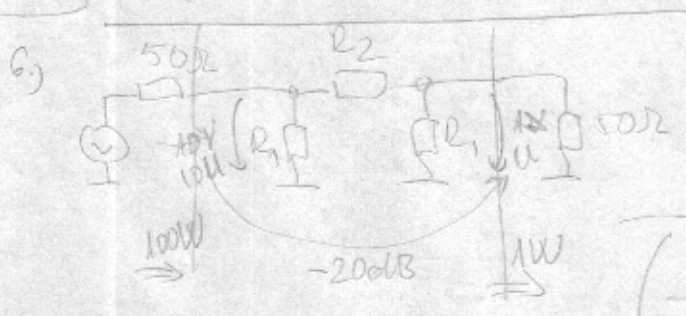
$$h_k = \int 1 \cdot e^{j\beta d \cos \alpha \varphi} 2 e^{j\varphi d \cos \alpha} \dots 1 \cdot e^{j\varphi d \cos \alpha} d\varphi \quad d = 0,5$$

$$\frac{2\pi}{\lambda} \cdot \frac{\lambda}{2} \cdot \cos(60^\circ) = \frac{\pi}{2}$$

$$|h_k| = [1 \ 2 \ 3 \ 4 \ 4 \ 3 \ 2 \ 1] \leftarrow \text{PSL miatt } \Delta \text{ fázis}$$

$$\text{arc}(h_k) = [0, e^{j\pi/2}, e^{j2\pi/2}, e^{j3\pi/2}, e^{j4\pi/2}, e^{j5\pi/2}, e^{j6\pi/2}, e^{j7\pi/2}] \leftarrow \text{fázisugrás miatt progresszív fázisok}$$

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$$1) (50 \times R_1 + R_2) \times R_1 = 50$$

$$\Leftrightarrow \frac{1}{10} = \frac{50 \times R_1}{50 \times R_1 + R_2}$$

$$\frac{50 R_1^2 + R_1 R_2 (50 + R_2)}{50 R_1 + (50 + R_2)(R_1 + R_2)} = 50 \leftarrow 1) \quad \left(\frac{50 \cdot R_1}{50 + R_1} + R_2 \right) \cdot R_1 = 50 \quad \cdot \frac{50 + R_2}{50 + R_2}$$

$$\frac{50 \cdot R_1}{50 R_1 + R_2 (50 + R_2)} = \frac{1}{10} \leftarrow 2) \quad \frac{50 \cdot R_1}{50 + R_1} + R_2 = \frac{1}{10} \quad \cdot \frac{50 + R_2}{50 + R_2}$$

$$50 R_1^2 + R_1 R_2 (50 + R_2) = 50 \cdot 50 \cdot R_1 + 50 (50 + R_2) (R_1 + R_2)$$

$61,1 \Omega = R_1$
 $247,5 \Omega = R_2$

$$50 R_1 = 10 \cdot 50 R_1 + 10 R_2 (50 + R_2) \Rightarrow 10 = \frac{50 R_1}{50 R_1} + \frac{R_2 (50 + R_2)}{50 R_2} \Rightarrow 9 = \frac{R_2 (50 + R_2)}{50 R_2} \Rightarrow 450 R_1 = 50 R_2 + R_1 R_2$$