COS

$$\cos(\alpha) + i\sin(\alpha) = e^{i\alpha}$$
$$\cos(-\alpha) + i\sin(-\alpha) = \cos(\alpha) - i\sin(\alpha) = e^{-i\alpha}$$
$$\cos(\alpha) = \frac{e^{i\alpha} + e^{-i\alpha}}{2}$$
$$\beta = \frac{2k}{n}$$
$$DFT(\cos(\beta k))_k = \sum_{j=0}^{n-1} e^{i\beta kj} \frac{e^{i\beta k} + e^{-i\beta k}}{2} = 1/2 \cdot \sum_{j=0}^{n-1} \left[e^{2i\beta k(j+1)} + e^{2i\beta k(j-1)}\right] =$$
$$= 1/2 \cdot \sum_{j=0}^{n-1} \left[\omega_n^{k(j+1)} + \omega_n^{k(j-1)}\right]$$

Pro $k(j+1) \equiv n \vee k(j-1) \equiv n : DFT(\cos(\beta k))_k = n/2$

Jinak $DFT(\cos(\beta k))_k = 0$