analysis

$$a_0 = \frac{1}{2\pi} \int_{0}^{2\pi} \frac{\mathbf{x}(t)}{\mathbf{x}(t)} dt$$
$$c_0 = \frac{1}{2\pi} \int_{0}^{2\pi} \frac{\mathbf{y}(t)}{\mathbf{y}(t)} dt$$

$$a_k = \frac{1}{\pi} \int_0^{2\pi} \frac{x(t) \cos(kt) dt}{x(t) \sin(kt) dt}$$

$$b_k = \frac{1}{\pi} \int_0^{2\pi} \frac{x(t) \sin(kt) dt}{y(t) \cos(kt) dt}$$

$$c_k = \frac{1}{\pi} \int_0^{2\pi} \frac{y(t) \cos(kt) dt}{y(t) \sin(kt) dt}$$

$$d_k = \frac{1}{\pi} \int_0^{2\pi} \frac{y(t) \sin(kt) dt}{y(t) \sin(kt) dt}$$

## synthesis

$$c_k = rac{1}{\pi} \int\limits_0^{\mathbf{y}(t)} \mathbf{v}(t) \, \mathrm{d}t \, dt$$

$$\sin(kt)dt$$

$$os(\kappa \iota)a\iota$$

 $\begin{vmatrix} \frac{\mathbf{x}(t)}{\mathbf{y}(t)} \end{vmatrix} = \begin{vmatrix} a_0 \\ c_0 \end{vmatrix} + \sum_{k=1}^{K} \begin{vmatrix} a_k & b_k \\ c_k & d_k \end{vmatrix} \begin{vmatrix} \cos(kt) \\ \sin(kt) \end{vmatrix}$