

## Discrete Fourier transform (dft)

Given a sequence of  $N$  terms

$$\{g[0], g[1], g[2], \dots, g[N-1]\}$$

its discrete Fourier transform (dft) is the sequence

$$\{G[0], G[1], G[2], \dots, G[N-1]\}$$

where

$$G[k] = \sum_{n=0}^{N-1} g[n] e^{-2jnk\pi/N}.$$

Further

$$g[n] = \frac{1}{N} \sum_{k=0}^{N-1} G[k] e^{2jnk\pi/N}.$$