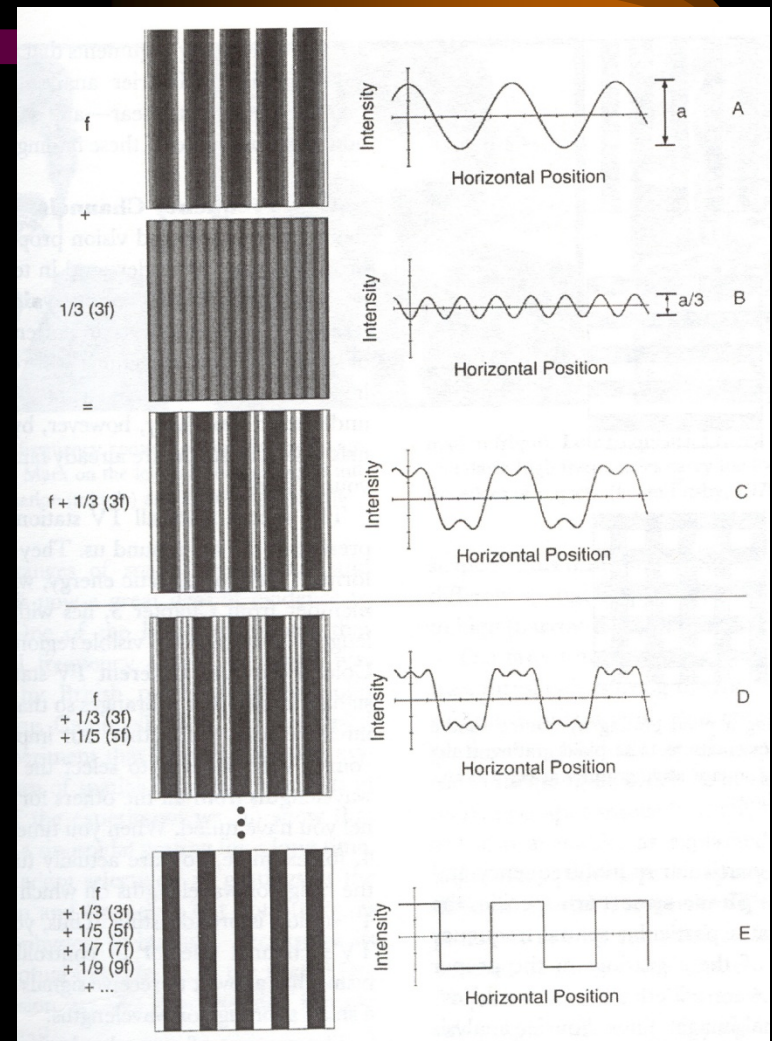


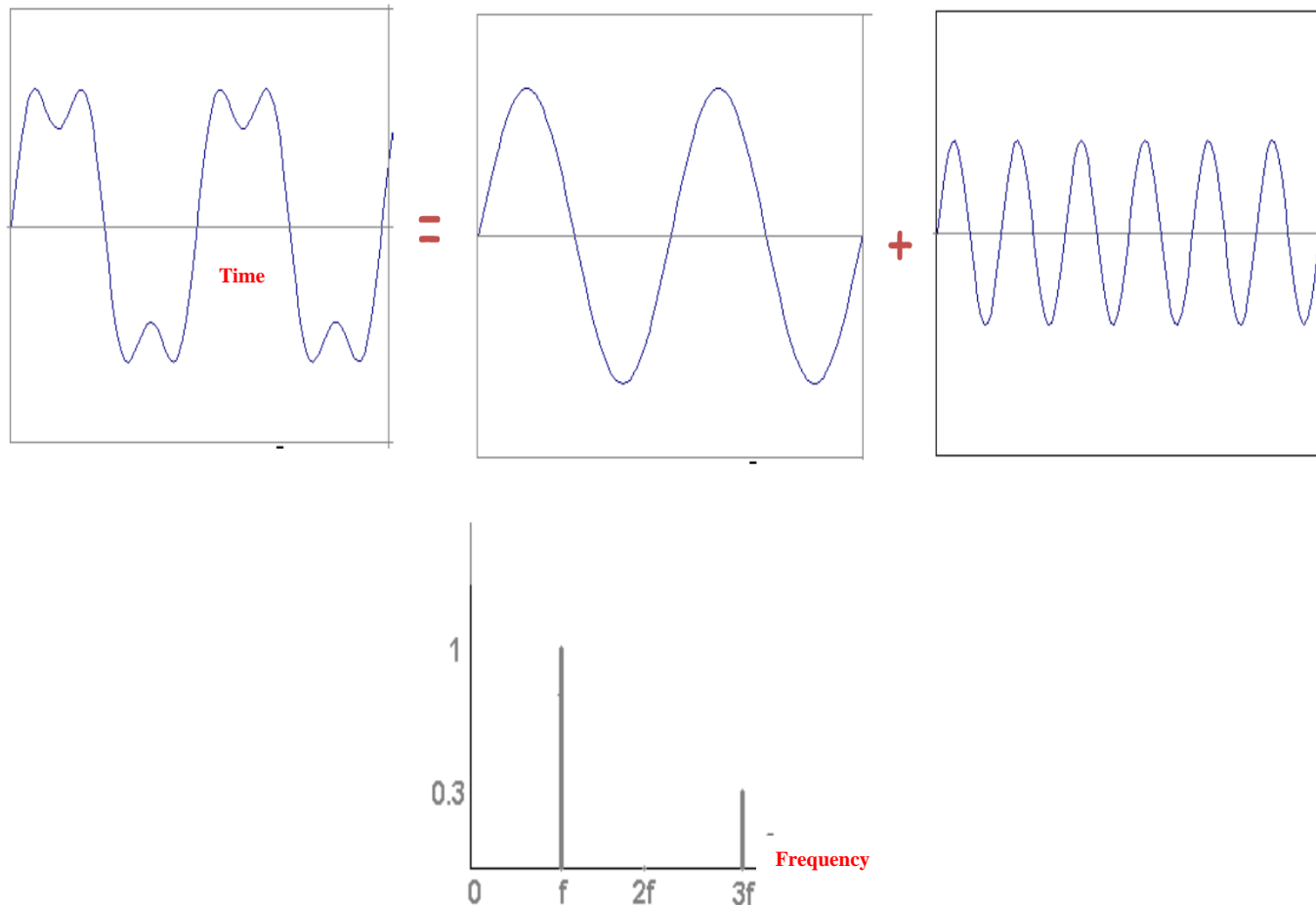
Fourier Transform

- Any image can be expressed as a linear combination of a bunch of sine gratings of different *frequency* and *orientation*
 - Amplitude
 - Phase

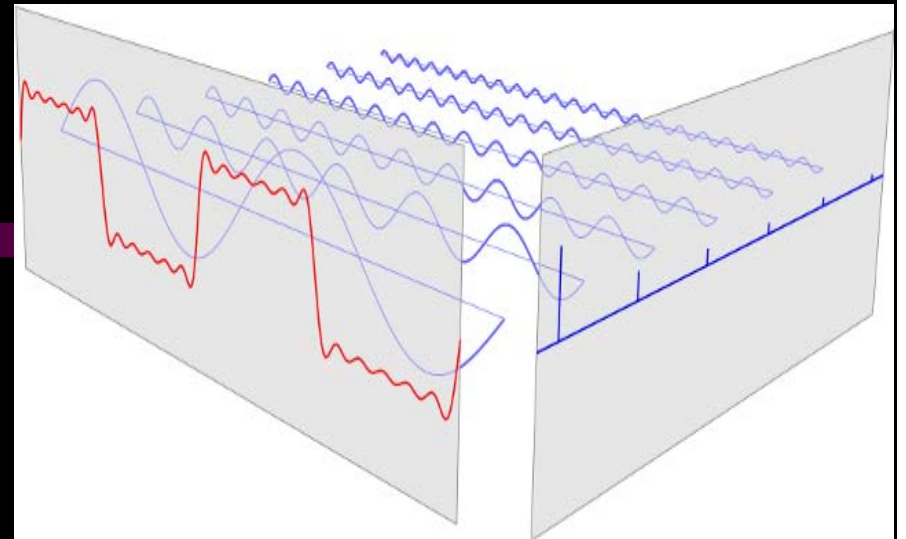


Fourier Transform in 1D

- example : $g(t) = \sin(2\pi f t) + (1/3)\sin(2\pi(3f) t)$

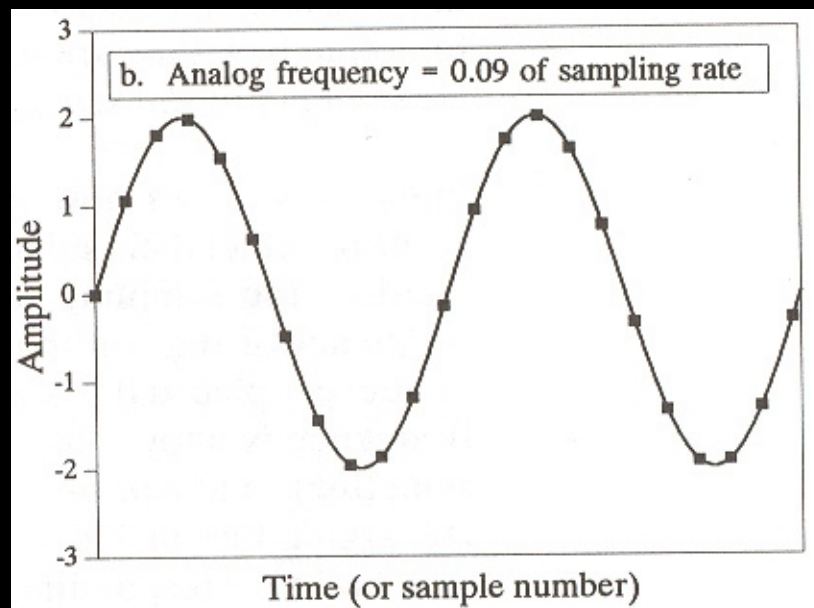


Fourier Transform in 1D

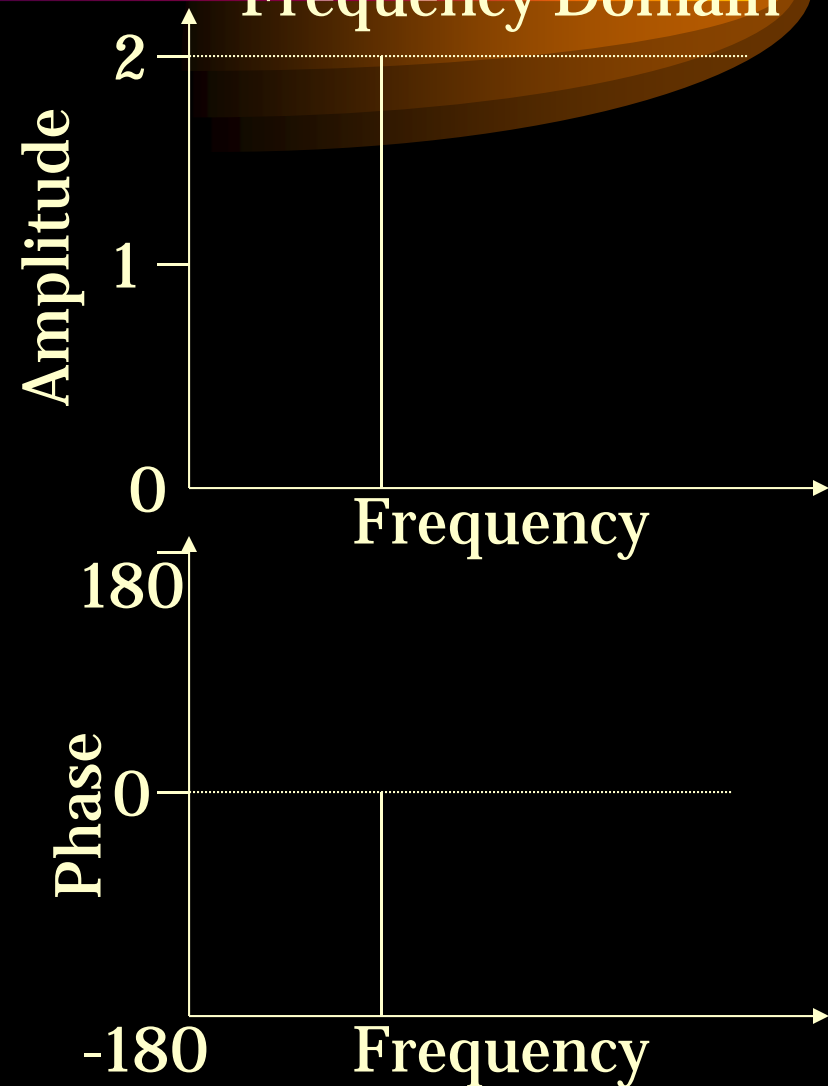


Representation in Both Domains

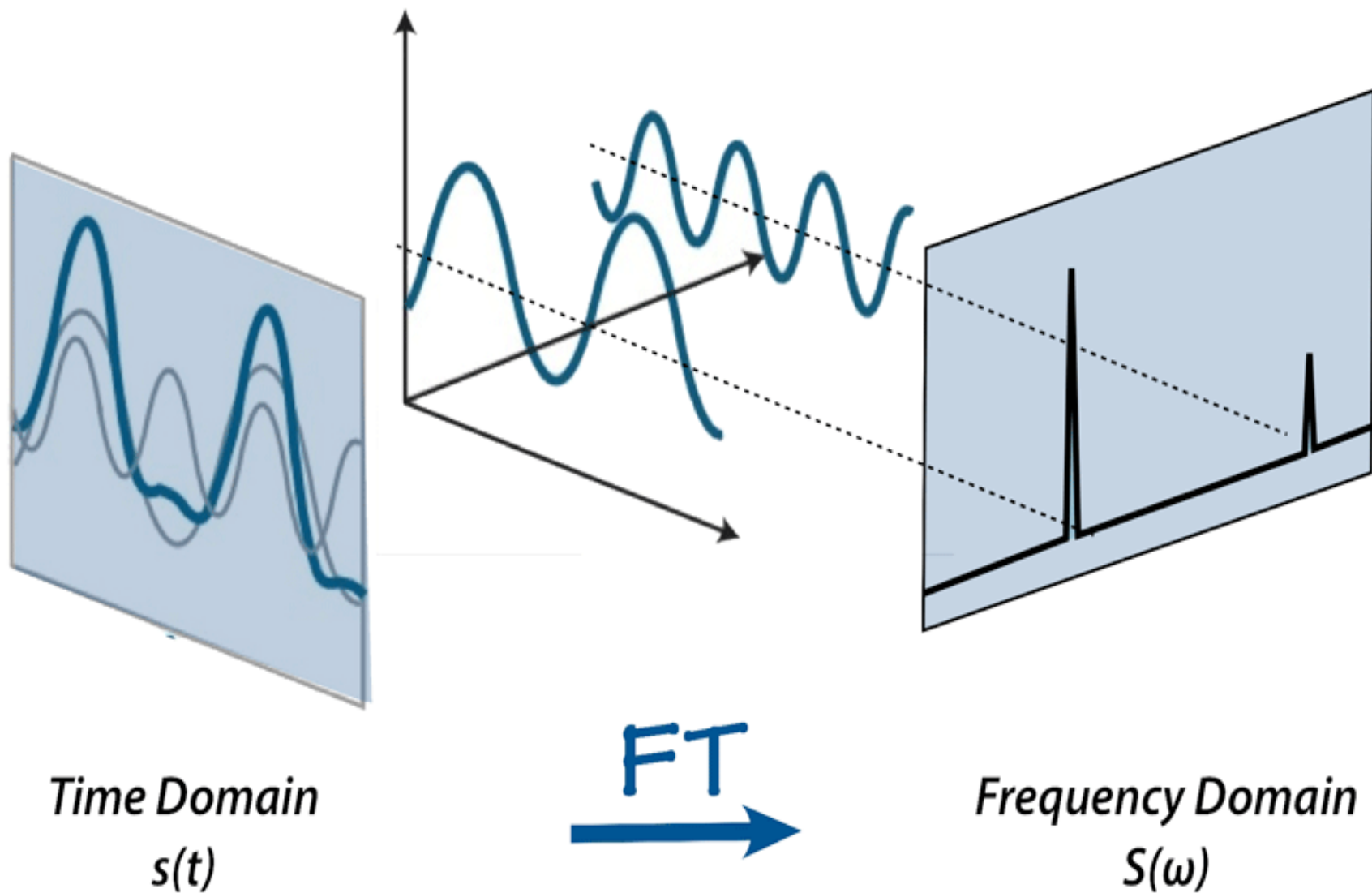
Frequency Domain



Time Domain

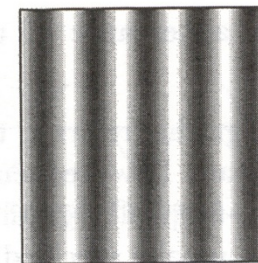


Fourier Transform in 1D

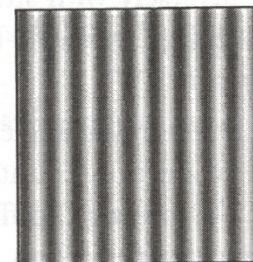
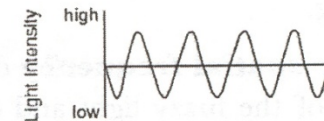


Images

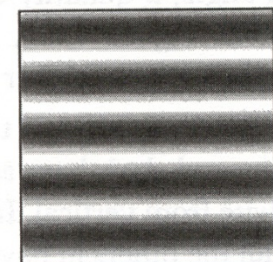
- Images representing sine waves
 - Frequency
 - Orientation
 - Amplitude
 - Phase



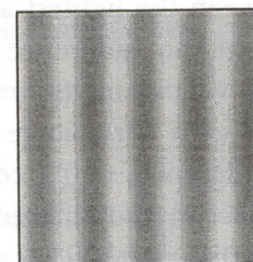
A. Sinusoidal Grating



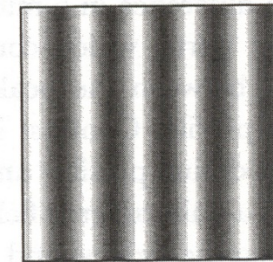
B. Different Frequency



C. Different Orientation



D. Different Amplitude



E. Different Phase