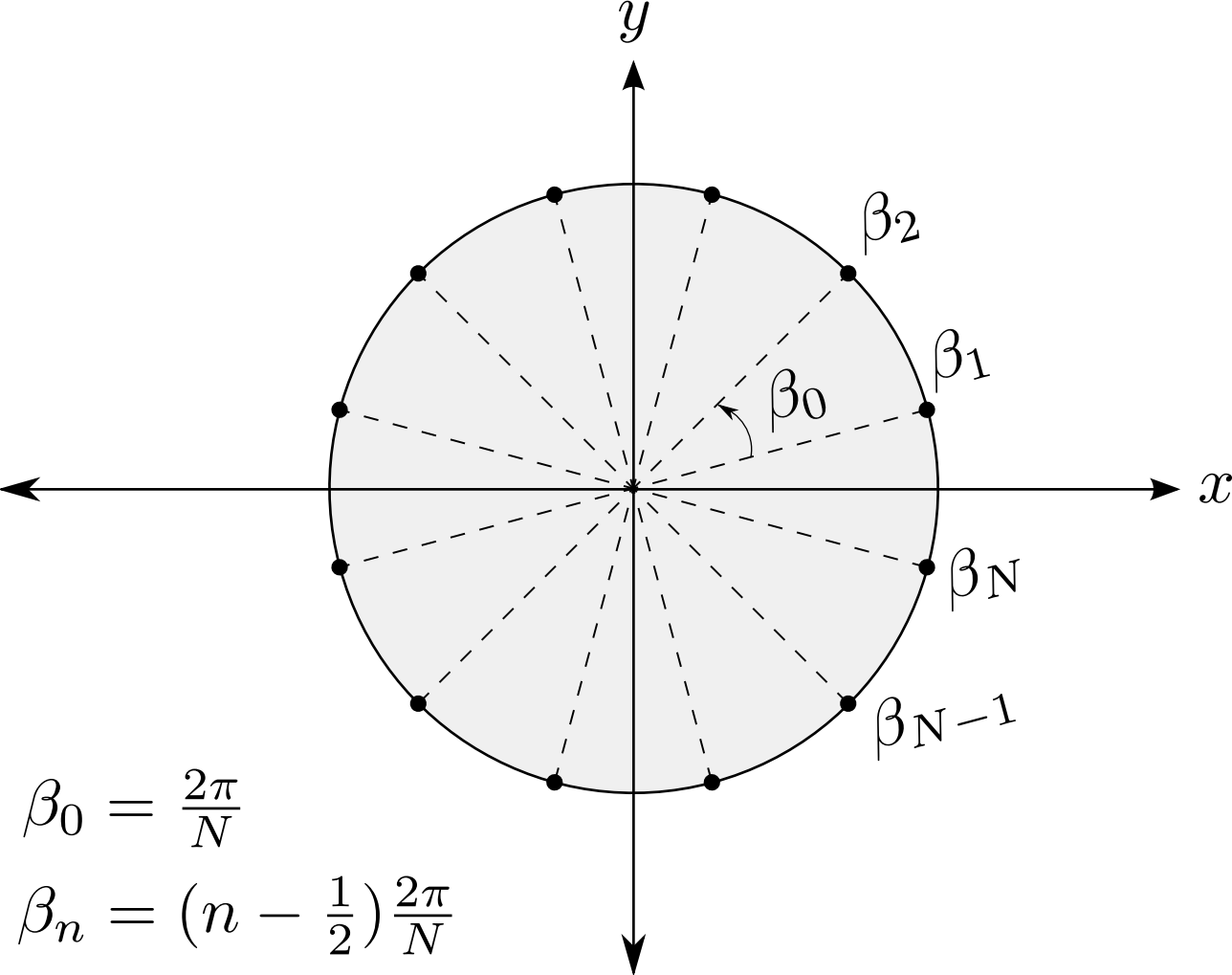

$$\beta_0 = \frac{2\pi}{N}$$

$$\beta_n = (n - \tfrac{1}{2})\frac{2\pi}{N}$$