1) Complex Fourier Series
   Consider,

$$x(t) = \sum_{n=-\infty}^{\infty} c_n e^{jnft} \tag{1}$$

   where c_n is the exponential fourier coefficient.

$$c_n = \frac{1}{T} \int_0^T x(t) e^{-jnft} \, dt \tag{2}$$

   where T is the time period of function $x(t)$.
2) Trigonometric Fourier Series
   We can write:

$$e^{jnft} = cos(nft) + jsin(nft) \tag{3}$$

   Substituting (3) in (1)

$$\begin{aligned} x(t) &= \sum_{n=-\infty}^{\infty} c_n (\cos(nft) + j \sin(nft)) && (4) \\ &= a_0 + \sum_{n=1}^{\infty} (a_n \cos(nft) + b_n \sin(nft)) && (5) \end{aligned}$$

   where a_0, a_n and b_n are trigonometric fourier series.

$$\begin{aligned} a_0 &= c_0 && (6) \\ &= \frac{1}{T} \int_0^T x(t) \, dt && (7) \\ a_n &= 2Re(c_n) && (8) \\ &= \frac{2}{T} \int_0^T x(t) \cos(nft) \, dt && (9) \\ b_n &= -2Im(c_n) && (10) \\ &= \frac{2}{T} \int_0^T x(t) \sin(nft) \, dt && (11) \end{aligned}$$