

$$\begin{aligned}
 \textcircled{5} \quad y(t) &= \cos t \sum_{k=-1}^{\infty} 2 |c_k| \cos(k\omega_0 + \phi_k) \\
 &= 20 + \sum_{k=1}^{\infty} 2 |c_k| \cos(k\omega_0 + \phi_k) \\
 &= 20 + [2 |c_1| \cos(\omega_0 + \phi_1) + 2 |c_2| \cos(\omega_0 + \phi_2) + 2 |c_3| \cos(\omega_0 + \phi_3) + \dots] \\
 &= 20 + [2 \times 6.23 \cos(\omega_0 + 78.7) + 2 \times 2.95 \cos(\omega_0 + 68.2) + 2 \times 1.81 \cos(\omega_0 + 59.04)] \\
 y(t) &= 20 + 12.46 \cos(\omega_0 + 78.7) + 5.9 \cos(\omega_0 + 68.2) + 3.62 \cos(\omega_0 + 59.04)
 \end{aligned}$$

$$n = 10 \quad = 1 + \left(\frac{f}{f_c} \right)^{10 \times 2} = 1.01$$

$$= \left(\frac{f}{f_c} \right)^{20} = 0.01$$

$$= \left(\frac{B}{f} \right)^{20} = 0.01$$

$$f_c = 79413$$