

H20

④ 続き

(4)

$$f(z) = \sin \lambda z$$

$$F(s) = \mathcal{L}[\sin \lambda t]$$

$$\gamma(t) \quad (3) = t \cdot \lambda$$

$$\mathcal{L}\left[\int_0^t \sin \lambda z \, dz\right] = \frac{1}{s} \mathcal{L}[\sin \lambda t]$$

$$= \frac{\lambda}{s(s^2 + \lambda^2)}$$

$$\frac{1}{s(s^2 + \lambda^2)} = \frac{1}{\lambda} \mathcal{L}\left[\int_0^t \sin \lambda z \, dz\right]$$

$$\mathcal{L}^{-1}\left[\frac{1}{s(s^2 + \lambda^2)}\right] = \frac{1}{\lambda} \int_0^t \sin \lambda z \, dz$$

$$= -\frac{1}{\lambda^2} [\cos \lambda z]_0^t$$

$$= (1 - \cos \lambda t) \frac{1}{\lambda^2}$$