

$$\Rightarrow \mathcal{L}(y) = \frac{3}{s^2(2s+3)} + \frac{2}{3(2s+3)} \quad (4)$$

$$= 3 \left[\frac{as+b}{s^2} + \frac{c}{2s+3} \right] + \frac{2}{3(2s+3)} \quad (1)$$

$$\Rightarrow (1) = \frac{2as^2 + 3as + 2bs + 3b + \frac{2}{3}}{s^2(2s+3)}$$

$$= \frac{(2a+c)s^2 + (3a+2b)s + 3b + \frac{2}{3}}{s^2(2s+3)}$$

$$\Rightarrow \begin{cases} 2a+c=0 & \Rightarrow c = -2a = -2(-2/3) = \boxed{\frac{4}{3} = c} \\ 3a+2b=0 & \Rightarrow -3a+2=0 \Rightarrow \boxed{a = -\frac{2}{3}} \\ 3b = 3 & \Rightarrow \boxed{b=1} \end{cases}$$

$$\Rightarrow \mathcal{L}(y) = 3 \left[\frac{-\frac{2}{3}s + 1}{s^2} + \frac{4}{3(2s+3)} \right] + \frac{2}{3(2s+3)}$$

$$= \frac{-2s+3}{s^2} + \frac{4}{2s+3} + \frac{2}{3(2s+3)}$$

$$= -\frac{2}{s} + \frac{3}{s^2} + \left(4 + \frac{2}{3}\right) \left(\frac{1}{2s+3}\right)$$

$$= -\frac{2}{s} + \frac{3}{s^2} + \frac{14}{3} \left(\frac{1}{2s+3}\right)$$

$$= -\frac{2}{s} + \frac{3}{s^2} + \frac{14}{3} \times \frac{1}{2} \left(\frac{1}{s+3/2}\right)$$

$$= -\frac{2}{s} + \frac{3}{s^2} + \frac{7}{3} \left(\frac{1}{s+3/2}\right)$$