

$$y'' - 4y' + 5y = 0 \quad y(0) = 1 \quad y'(0) = 4$$

$$s^2 Y(s) - s y(0) - y'(0) - 4(sY(s) - y(0)) + 5Y(s) = 0$$

$$s^2 Y(s) - s - 4 - 4(sY(s) - 1) + 5Y(s) = 0$$

$$s^2 Y(s) - s - 4 - 4sY(s) + 4 + 5Y(s) = 0$$

$$s^2 Y(s) - 4sY(s) + 5Y(s) - s = 0$$

$$s^2 Y(s) - 4sY(s) + 5Y(s) = s$$

$$Y(s)(s^2 - 4s + 5) = s$$

$$Y(s) = \frac{s}{s^2 - 4s + 5} \rightarrow \frac{s}{(s^2 - 4s + 4) - 4 + 5} \rightarrow \frac{s}{(s-2)^2 - 1}$$