

$$c) P_1 = \frac{1}{s^2} \cdot \frac{50}{s+1} \cdot s$$

$$P_2 = \frac{1}{s^2} \cdot \frac{50}{s+1} \cdot (-2)$$

$$L_1 = \frac{1}{s^2} \cdot \frac{50}{s+1} \cdot s(-1)$$

$$L_2 = \frac{1}{s^2} \cdot \frac{50}{s+1} \cdot 2$$

$$L_3 = \frac{50}{s+1} \left(-\frac{2}{s} \right)$$

$$C/R = \frac{P_1 + P_2}{1 - (L_1 + L_2 + L_3)}$$

$$= \frac{1/s^2 \cdot \frac{50}{s+1} (s-2)}{1 - \left(-1/s^2 \cdot \frac{50}{s+1} \cdot s + 1/s^2 \cdot \frac{100}{s+1} - \frac{100}{s(s+1)} \right)}$$

$$= \frac{1/s^2 \cdot \frac{50}{s(s+1)} (s-2)}{1 - \frac{50}{s(s+1)} \left(\frac{50}{s} - s+1 \right)}$$

$$= \frac{50(s-2)}{s^4 + s^3 - 2500s^2 - 2500s}$$