(2) $$\frac{Y(s)}{E(s)} = \frac{4s+10}{s+10} \cdot \frac{4}{s+4} \cdot \frac{4.586s + 0.404}{s^2 + 0.211s + 6.922}$$

$$\frac{Y(s)}{E(s)} = \frac{77.376s^2 + 189.904s + 16.16}{s^4 + 14s^3 + 47.133s^2 + 99.862s + 285.32}$$

$$Y(s) = \frac{77.376s^2 + 189.904s + 16.16}{s^5 + 14.211s^4 + 49.876s^3 + 105.348s^2 + 276.88s}$$

* using wolfram for partial fractions *

$$Y(s) = \frac{5.39964 - 0.1131735s}{s^2 + 0.211s + 6.922} + \frac{0.0583646}{s} - \frac{0.812574}{s+4} + \frac{0.867382}{s+10}$$

$$Y(t) = \mathcal{L}^{-1}\left\{\frac{5.39964 - 0.1131735s}{s^2 + 0.211s + 6.922}\right\} + 0.0583646 - 0.812574e^{-4t} + 0.867382e^{-10t}$$

w/ wolfram: $\mathcal{L}^{-1}\left\{\frac{5.39964 - 0.1131735s}{s^2 + 0.211s + 6.922}\right\} =$

$$(-0.0565865 - 1.02927i)e^{(-0.105 - 2.62i)t} \cdot \left(e^{5.27it} + (-0.99 - 0.109i)\right)$$

w/ wolfram: $$Y(z) = 2 \cdot 10^{-7} z \left(-\frac{2.21 \cdot 10^8}{54.59z - 1} + \frac{9.55 \cdot 10^{10}}{22{,}026z - 1} + \frac{291{,}823}{z - 1}\right)\left(\frac{z}{z-1}\right)$$