

$$G(s) = (s^{-4} + 3s^{-2} + 2)^{-6}$$

$$G'(s) = -6(s^{-4} + 3s^{-2} + 2)^{-7} \cdot (-4s^{-5} - 6s^{-3})$$

$$= \frac{-6(-4s^{-5} - 6s^{-3})}{(s^{-4} + 3s^{-2} + 2)^7}$$

$$= \frac{-6 \left(\frac{-4}{s^5} - \frac{6}{s^3} \right)}{\left(\frac{1}{s^4} + \frac{3}{s^2} + 2 \right)^7}$$

$$= \frac{-6 \left(\frac{-4 - 6s^2}{s^5} \right)}{\left(\frac{1 + 3s^2 + 2s^4}{s^4} \right)^7}$$

$$= -6 \left(\frac{-4 - 6s^2}{s^5} \right) \cdot \frac{s^{28}}{(1 + 3s^2 + 2s^4)^7}$$

$$= \frac{-6(-4 - 6s^2)s^{23}}{(1 + 3s^2 + 2s^4)^7}$$

$$(23) \quad h'(x) = \frac{10((2x+1)^{10} + 1)^9 (10(2x+1)^9 (2))}{200(2x+1)^9 ((2x+1)^{10} + 1)^9}$$

$$\begin{aligned} (25) \quad F(t) &= 2t(2t+1)^2(2t+3)^3 \\ &= 2t(4t^2 + 4t + 1)(2t+3)^3 \\ &= (8t^3 + 8t^2 + 2t)(2t+3)^3 \\ &= (8t^3 + 8t^2 + 2t)(3(2t+3)^2(2)) + (2t+3)^3(24t^2 + 16t + 2) \\ &= 6(2t+3)^2(8t^3 + 8t^2 + 2t) + (2t+3)^3(24t^2 + 16t + 2) \\ &= (2t+3)^2(48t^3 + 48t^2 + 12t + 24t^3 + 32t^2 + 16t + 72t^2 + 48t + 6) \\ &= (2t+3)^2(96t^3 + 162t^2 + 104t + 6) \\ &= 2(2t+3)^2(48t^3 + 81t^2 + 32t + 3) \end{aligned}$$