

$$\textcircled{1} 3(x^2-3x+8)^2 (2x-3)$$

$$\begin{aligned}\textcircled{3} g(x) &= (8x-7)^{-5} \\ g'(x) &= -5(8x-7)^{-6}(8) \\ &= \frac{-40}{(8x-7)^6}\end{aligned}$$

$$\begin{aligned}\textcircled{5} f(x) &= \frac{x}{(x^2-1)^4} \\ f'(x) &= \frac{(x^2-1)^4(1) - x(4(x^2-1)^3(2x))}{(x^2-1)^8} \\ f'(x) &= \frac{(x^2-1)^4 - 8x^2(x^2-1)^3}{(x^2-1)^8} \\ &= \frac{x^2-1-8x^2}{(x^2-1)^5} \\ &= \frac{-7x^2-1}{(x^2-1)^5}\end{aligned}$$

$$\begin{aligned}\textcircled{7} f(x) &= (8x^3-2x^2+x-7)^5 \\ f'(x) &= 5(8x^3-2x^2+x-7)^4 (24x^2-4x+1)\end{aligned}$$

$$\begin{aligned}\textcircled{9} F(v) &= (17v-5)^{1000} \\ F(v) &= 1000(17v-5)^{999}(17) \\ F'(v) &= 17,000(17v-5)^{999}\end{aligned}$$

$$\begin{aligned}\textcircled{11} g(t) &= (4t^5-3t^3+2t)^{-2} \\ g'(t) &= -2(4t^5-3t^3+2t)^{-3} (20t^4-9t^2+2) \\ &= \frac{(-40t^4+18t^2-4)}{(4t^5-3t^3+2t)^3}\end{aligned}$$

$$\begin{array}{r} 96 \\ 72 \\ \hline 168 \end{array}$$

$$\begin{array}{r} 4 \\ 16 \\ 7 \\ \hline 112 \end{array}$$

$$\textcircled{13} N(x) = (6x-7)^3 (8x^2+9)^2$$

$$\begin{aligned}& (6x-7)^3 2(8x^2+9)(16x) + (8x^2+9)^2 3(6x-7)^2 (6) \\ & 32x(6x-7)^3(8x^2+9) + 18(6x-7)^2(8x^2+9)^2 \\ & 2(8x^2+9)(6x-7)^2 (16x(6x-7) + 9(8x^2+9)) \\ & 2(8x^2+9)(6x-7)^2 (168x^2 - 126x + 81)\end{aligned}$$

$$96x^2 - 112x + \dots$$