. 5 1. Use the quotient rule to find the derivative of $C(x) = \dfrac{7x+1}{3x+8}$.

Solution. Using the quotient rule (see page 231 of the text), we have

$$\begin{aligned} C'(x) &= \frac{7 \cdot (3x+8) - (7x+1) \cdot 3}{(3x+8)^2} \\ &= \frac{(21x+56) - (21x+3) \cdot 3}{(3x+8)^2} \\ &= \frac{53}{(3x+8)^2}. \end{aligned}$$

. 5 2. Find the derivative of $h(x) = -2(12x^2+5)^6$.

Solution. Using the chain rule (see page 240 of the text), we have

$$h'(x) = (-2)6(12x^2+5)^5 \frac{d}{dx}\big(12x^2+5\big) = -12(12x^2+5)^5(12x) = 144x(12x^2+5)^5$$