MCS21 Homework 19

Find the derivative of each function.

1. $f(x) = x \cdot \sqrt[3]{x}$

2. $f(x) = x\left(x^2 + 1\right)^5$

3. $f(x) = \sqrt{x}\left(x^3 - 2\right)^{40}$

4. $f(x) = \sqrt{\dfrac{4x+1}{7-2x}}$

5. $f(x) = x^5 \cdot \sqrt[3]{10x^4 - 2x}$

6. $f(x) = \dfrac{(x+1)^6}{(8x+3)^7}$

7. Refer to the table of values below.

x	3	7
$g(x)$	7	4
$g'(x)$	–5	–1
$h(x)$	2	–6
$h'(x)$	–4	3

i) Find $f'(7)$ given that $f(x) = h(x) \cdot g(x)$.

ii) Find $f'(3)$ given that $f(x) = \dfrac{g(x)}{h(x)}$.

iii) Find $f'(3)$ given that $f(x) = h\left(g(x)\right)$.