MCS21 Homework 20

In 1 – 4, find $\frac{dy}{dx}$ in completely factored form.

1. $y = x^2(x-2)^4$

2. $y = x(3x-9)^3$

3. $y = \left(\frac{2x+4}{3x-1}\right)^3$

4. $y = (4x-1)^{10}(3x^2-2)^6$

5. Given $y = (5x-1)^4(2x+3)$.

   (a) Find $\frac{dy}{dx}$ in completely factored form.

   (b) State all x values where the tangent line is horizontal.

6. Refer to the table of values below.

x	6	11
$g(x)$	11	–4
$g'(x)$	7	–1
$h(x)$	2	5
$h'(x)$	–1	7

   i) Find $f'(6)$ given that $f(x) = h(x) \cdot g(x)$.

   ii) Find $f'(11)$ given that $f(x) = \frac{g(x)}{h(x)}$.

   iii) Find $f'(6)$ given that $f(x) = h\big(g(x)\big)$.