The chain rule and the extended power rule

3.7.1

a. $\dfrac{dy}{dx} = \dfrac{1}{2\sqrt{x^2+\sqrt{x}}}\left(2x + \dfrac{1}{2\sqrt{x}}\right)$

b. $\dfrac{dy}{dx} = 30\left(\dfrac{2x-1}{\sqrt{1-x}} + x\right)^{29} \cdot \left(\dfrac{2\sqrt{1-x} - (2x-1)\frac{-1}{2\sqrt{1-x}}}{1-x} + 1\right)$

3.7.2 Applying the chain rule at every step, we have

$(f(g(h(p(x)))))' = f'(g(h(p(x))))(g(h(p(x))))' = f'(g(h(p(x))))g'(h(p(x)))(h(p(x)))'$

which leads to the answer.