Math 29

In-class problems on the chain rule

Use Russian dolls to diagram the following functions. Then find the derivatives.

1. $f(x) = (2 + 3x)^3(4x - x^5)^7$

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

3. $f(x) = \sqrt{\frac{x^2-1}{2x+1}}$

4. Suppose that $F(x) = f(g(x))$, where $f(-2) = 8$, $f'(-2) = 4$, $f'(5) = 3$, $g(5) = -2$, $g'(5) = 6$. Find $F'(5)$.