Find the following derivatives:

1. \( \frac{d}{dr} \left[ \pi r^2 \right] \)

2. \( \frac{d}{dt} \left[ h_0 + v_0 t - 16t^2 \right] \)

3. \( \frac{d}{dx} \left[ (x^2 - 1)^7 \right] \)

4. Suppose \( \frac{dy}{du} = \frac{1}{u} \) and \( u = x^2 \). What is \( \frac{dy}{dx} \)? Note: If you don’t like this notation, you can think of it this way: \( f'(u) = \frac{1}{u} \), \( g(x) = x^2 \) and you are looking for the derivative of \( f(g(x)) \).

5. Suppose \( \frac{dr}{dt} = 4, A = \pi r^2 \). What is \( \frac{dA}{dt} \)?