For full credit you must present a clearly organized solution, showing all supporting calculations. This quiz has two sides!

1. Let c be a constant. Use *the limit definition* of the derivative to find $f'(x)$ for

$$f(x) = (cx)^2 - cx^3.$$

2. Find all values of c such that the function

$$g(x) = \begin{cases} (cx)^2 - cx^3 & \text{if } x \leq 1 \\ 2x & \text{if } x > 1 \end{cases}$$

is differentiable when $x = 1$. You may use the results of the first question, but should still carefully justify differentiability of g at $x = 1$ by appealing to appropriate definitions or theorems.