This is a group quiz, so you are encouraged to work together in groups no larger than 4. You may use your notes, the text, and a calculator. You should include enough detail so that you could reproduce your solution.

1. Given the function $g(x) = 200 + 8x^3 + x^4$:

   (a) Find the intervals of increase or decrease.

   (b) Find the local maximum and local minimum values.

   (c) Find the intervals of concavity and the inflection points.

**Turn Page Over...**

2. Compute each limit, if it exists.

    (a) $\lim\limits_{x \to \infty} x^3 e^{-2x}$

    (b) $\lim\limits_{x \to \infty} x^{1/x}$