Calculus Problem 4 Name:_____

You may use a calculator to compute solutions but show your set-ups.

Show all relevant work!

(1) Find $f'(x)$ for the following functions with the product rule, rather than by multiplying out. Do not simplify.

(a) $f(x) = (x-1)(x-2)$

(b) $f(x) = (x-1)(x-2)(x-3)$

(c) $f(x) = (x-1)(x-2)(x-3)(x-4)$

(2) Use your results from the previous question to anticipate $f'(x)$ for the following function:

$$f(x) = (x-k_1)(x-k_2)(x-k_3)\cdots(x-k_n)$$

where $k_1, k_2, k_3, \ldots, k_n$ are any real numbers.
You may express your answer as a formula or describe it in words.