For full credit you must present a clearly organized solution, showing all supporting calculations.

1. Calculate the following derivatives by any means necessary. You do not need to simplify.

(a) $\dfrac{\mathrm{d}}{\mathrm{d}x}\left((x - e^x)\tan(x)\right)$,

(b) $f'(x)$ for $f(x) = \dfrac{x^3 - 1}{x^3 + 1}$,

(c) $g''(t)$ for $g(t) = \sin(t)\cos(t)$.

2. Let $f(x) = \dfrac{x}{e^x} - 4\sin(x)$. Find $f^{(102)}(x)$, the 102nd derivative of $f(x)$.