AP CALCULUS
2006AB6 NAME: PERIOD:
9 POINTS (4,5)

You MAY NOT use your calculators.

The twice-differentiable function f is defined for all real numbers and satisfies the following conditions: $f(0) = 2$, $f'(0) = -4$ and $f''(0) = 3$.

(a) The function g is given by $g(x) = e^{ax} + f(x)$ for all real numbers, where a is a constant. Find $g'(0)$ and $g''(0)$ in terms of a. Show the work that leads to your answers.

(b) The function h is given by $h(x) = f(x)\cos(kx)$ for all real numbers where k is a constant. Find $h'(x)$ and write an equation for the tangent to the graph of h at $x = 0$.