

AP Problem

$$g'(x) = a e^{ax} + f'(x)$$

$$g'(0) = a e^0 + f'(0) = a - 4$$

$$g''(x) = a^2 e^{ax} + f''(x)$$

$$g''(0) = a^2 + f''(0) = a^2 + 3$$

$$h(x) = \cos(kx) f(x)$$

$$h'(x) = -k \sin(kx) f(x) + \cos(kx) f'(x)$$

$$h'(0) = f'(0) = -4$$

$$h(0) = f(0) = 2$$

$$y - 2 = -4(x - 0) = -4x$$