MATH 115-027 QUIZ 6 / 8 November 2005 Name:_____

1. For some $k > 0$, the functions $f(x) = 2e^x$ and $g(x) = kx$ are tangent for a value of $x > 0$. Find the values of x and k that result in this condition being true. (4 points)

2. Find the linear approximation to the function $h(x)$ defined implicitly by $x^2y + 3xy^4 = 10$ if we are interested in values of x and y near the point $(2, 1)$. (3 points)

3. Suppose that the figure to the right shows $f'(x)$ for some function $f(x)$. Identify all critical points, local maxima and minima, and inflection points of the function $f(x)$. (3 points)