(6.) (8 pts) [Show all work.]

If y satisfies the equation

$$y^2 + 2xy - 3x = 0,$$

(a) find $\dfrac{dy}{dx}$.

(b) Based on your answer to part (a), is the graph increasing, decreasing, or neither (*ie.,* tangent horizontal or undefined) at the point (1,1)? Explain.

(7.) (12 pts) A laboratory study investigating the relationship between diet and weight in adult humans found that the weight, W, of a subject, in pounds, was a function, f, of the daily average number of calories, c, consumed by the subject. In terms of diet and weight, interpret the following statements or expressions. [Be certain to include units and write in sentences.]

(a) $f(1800) = 155$

(b) $f'(2000) = 0$

(c) $f^{-1}(162)$

(d) What are the units of $f'(c)$?