Section _____ **Name** _____

TA _____ **Student Number** _____

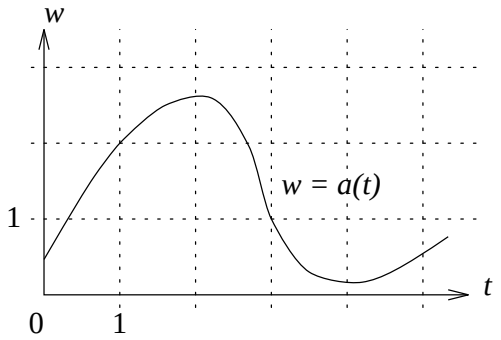
Math 126A **Calculus With Analytic Geometry III** **Fall 1995**

QUIZ #7

11/9/95

Straight lines must be drawn with a ruler; no credit will be given if drawn by hand. Don't worry about algebraically simplifying numbers (i.e. you may leave radicals in the denominator, fractions unreduced, etc.). **Show your work.**

In each of the following problems, we are given two functions: $f(x, y) = y^2 - 3xy$ and $w = a(t)$, defined by its graph below.



1. (3 points) Compute the components of the gradient of f at an arbitrary point (x, y).

$$\text{grad } f = \boxed{}$$

2. (2 points) Compute $f_{xy}(2, 1)$.

$$f_{xy}(2, 1) = \boxed{}$$

3. (5 points) Compute $\dfrac{d}{dt} f(a(t), a(t))$ at the point $t = 1$. Your answer will be a number.

$$\left.\frac{d}{dt} f(a(t), a(t))\right|_{t=1} = \boxed{}$$