Math 126B **Calculus With Analytic Geometry III** **Spring 1995**

QUIZ #2 SOLUTIONS

4/11/95

1. (a) The standard parameter representation of the line is

$$\vec{r}(t) = \overrightarrow{OA} + t\,\overrightarrow{AB}.$$

Reading off the components from the graph, we get $\overrightarrow{OA} = (6, 5.4)$, $\overrightarrow{OB} = (2, 2.8)$, and therefore $\overrightarrow{AB} = \overrightarrow{OB} - \overrightarrow{OA} = (-4, -2.6)$. Substituting these components into the standard parameter representation above, the answer is $\vec{r}(t) = (6, 5.4) + t(-4, -2.6)$, or

$x(t) = 6 - 4t$

$y(t) = 5.4 - 2.6t$

(b) The speed is $|\overrightarrow{AB}|$, the length of the velocity vector $\overrightarrow{AB}$. You could calculate it from the components that we computed above; but it is much simpler just to measure it from the graph:

speed $= 4.8$

(c) $P(t)$ crosses the x-axis when $y(t) = 0$. From the formula in part (a), this is when

$t = 5.4/2.6 \approx 2.1$