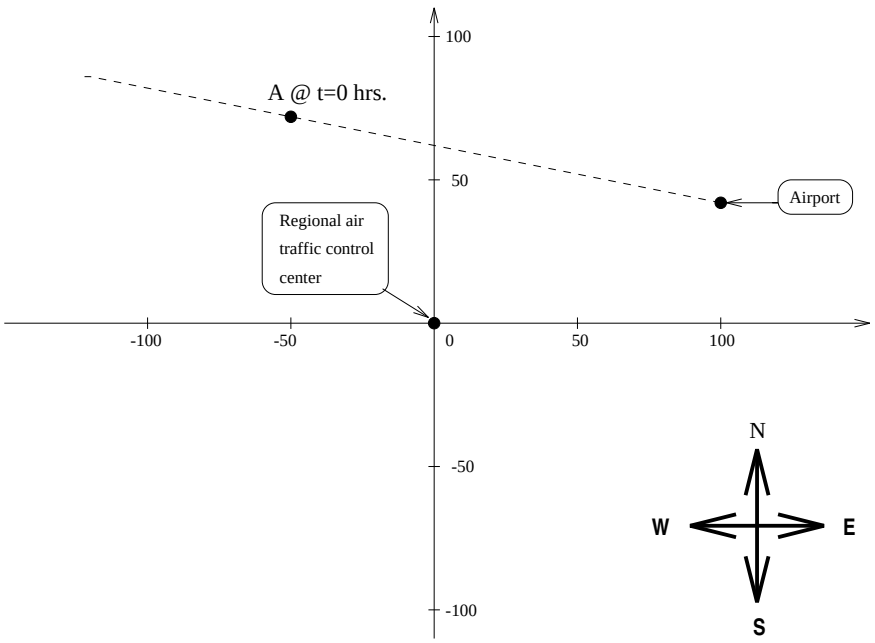
Name _____

Math 120 (QUIZ 7, November 20, 1997)

Instructions: You have 25 minutes for this quiz. **Show your work; NO CREDIT for answers only.**

Problem: The Regional Air Traffic Control Center (at the origin) has the following partial set of data on two aircraft approaching a local airport. The airport is 100 miles East and 40 miles North of the control center. *Note: All distances are in "miles", and all speeds are in "miles per hour".*

Known data:	Aircraft A	Aircraft B
Initial coordinates $t = 0\,hrs$	$(-50\,mi, 70\,mi)$	
Speed	$100\,mph$	
$x(t)$		$-100 + 96t$
$y(t)$		$-100 + 67.2t$



(a) (1 pt.) When is plane A over the airport? Write your answer to at least 4 decimal places.

(b) (2 pts.) What are the horizontal and vertical velocities (i.e. v_x and v_y) for aircraft A? (Use 2 decimal places of accuracy.)

(c) (2 pts.) What are the parametric equations for the aircraft A?

(d) (1 pt.) What are the initial coordinates (at time $t = 0$ hrs) of aircraft B?

(e) (1 pt.) When is plane B over the airport? Write your answer to at least 4 decimal places.

(f) (3 pts.) Find $|v|$ and θ for aircraft B. That is, give the speed of aircraft B *along its flight path* as well as the direction angle.