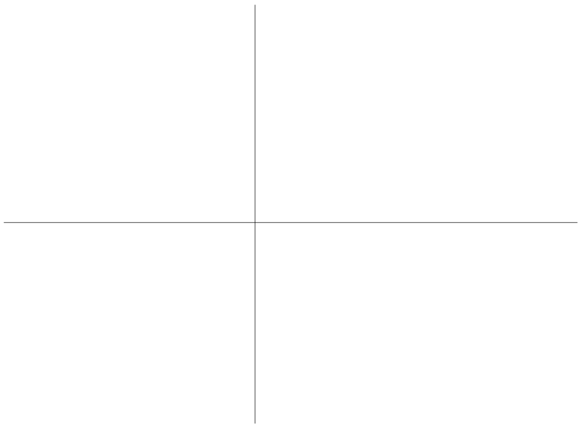
Math 120F
November 20, 1997
Quiz #7 (20 points)
TA section (Circle one): FA FB FC FD

Name ____________________

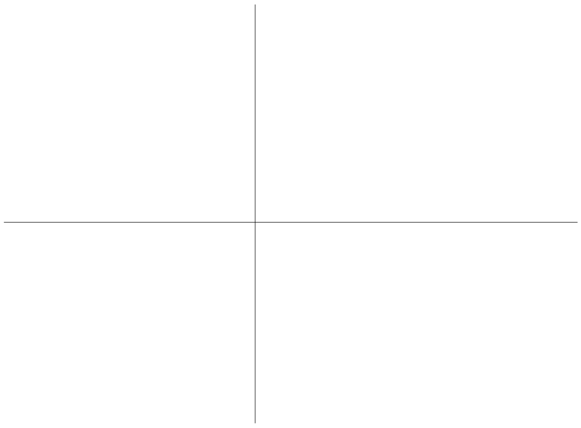
Instructions: You have 40 minutes total for Quiz #7. You **MUST** show work for credit. If in doubt, ask for clarification.

1. (8 points) Short Answer

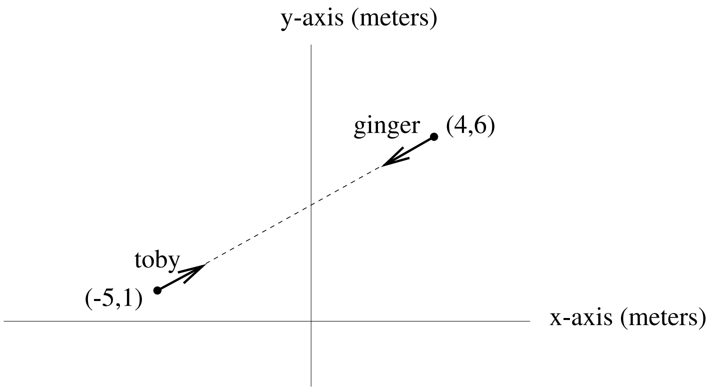
   (a) (5 pts) An object is moving in the xy-coordinate system with the parametric equations: $x(t) = 2 - t$ and $y(t) = 1 + 2t$. Assume $t \geq 0$. Sketch the curve traced out by the object in the coordinate system at right. Make sure to clearly label the position of the object at time $t = 0$. In addition, find a function $y = f(x)$ on some domain whose graph gives this curve.



   (b) (3 pts) Suppose a vector v has $v_x = -34$ ft/sec and $v_y = 12$ ft/sec. Find the speed $|v|$ and direction of v. Sketch the vector in the coordinate system at right with its tail located at the origin.



2. (12 points) Ginger and Toby (both dogs) are located at the locations pictured. Ginger starts walking 1.2 meters/sec in the direction pictured. At the same instant, Toby starts moving according to the parametric equations:
$x_{Toby}(t) = -5 + t$
$y_{Toby}(t) = 1 + 0.555t$.



(a) (1 pts) Where is Toby at time $t = 2$ seconds (give coordinates)?

(b) (1 pts) When does Toby cross the y-axis?

(c) (4 pts) Find the direction angle for Ginger's velocity vector and sketch it into the picture. Then find parametric equations for Ginger's motion.

(d) (2 pts) Where and when does Ginger pass Toby?

(e) (4 pts) Determine the time(s) (if ever) when Toby is a distance of <u>at least</u> 4 meters from the origin.