Math 120F
October 2, 1997
Quiz #1 (20 points)

Name _____

TA section (Circle one): FA FB FC FD

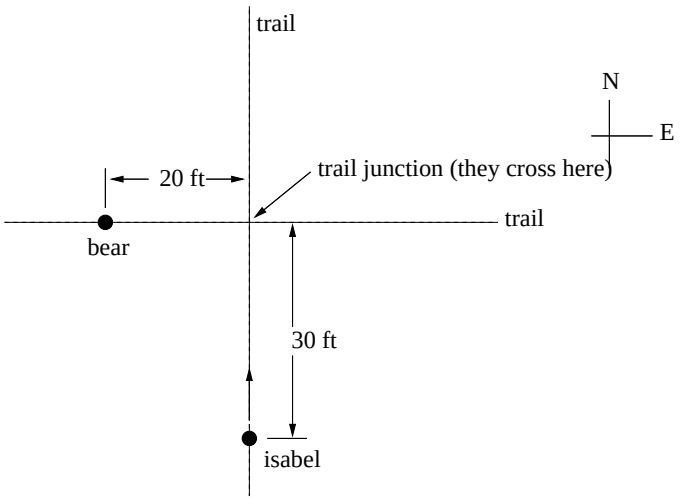
Instructions: You have 25 minutes for this quiz. You **MUST** show work for credit. If in doubt, ask for clarification.

1. (2 points) Which is faster: 100 miles/hour or 150 feet/second ?

2. (4 points) Solve this equation for t:

$$4 = \sqrt{(t-1)^2 + (2-5)^2}$$

3. (14 points) Isabel is hiking North along a wilderness trail at a speed of 3 miles/hour. When she is 30 feet South of a trail junction, she notices a bear. The bear is sitting 20 feet directly West of the intersection of Isabel's trail and another trail. The two pictured trails are perpendicular.



*** TOP VIEW LOOKING DOWN ***

(a) (3 points) Impose a coordinate system with THE BEAR as the origin. Sketch the axes in your picture. Give the coordinates of Isabel at time $t = 0$; that is, when she first notices the bear.

(b) (3 points) For this question, assume the bear does not move and Isabel continues along the trail without hesitation. Find the straight line distance from Isabel to the bear at time $t = 5$ seconds after she first notices the bear.

(c) (4 points)For this question, suppose the bear is sleeping and Isabel is able to hike right on by without hesitation. Determine when the straight line distance from Isabel to the bear is 30 feet?

(d) (4 points) For this question, suppose that the bear does not move for the first 5 seconds after Isabel notices it. At time $t = 5$ seconds, the bear starts moving toward the trail junction at 12 feet/sec. Who gets to the trail junction first?