Math 120 D **Quiz 2** (28 minutes) Tuesday, October 14, 1997

Name _____ **Student number** _____ **Quiz section:** _____

Please **show your work** for full credit.

1. A drinking fountain is located inside a parabolic-shaped field as shown. The parabola is given by the equation $y = 2x^2 - 1$, where x and y measure the distance (in km) east and north, respectively, from the fountain. A thirsty runner, starting at 1 km east and 1 km south of the fountain, runs directly towards the fountain at a constant speed of $\frac{1}{3}$ km/minute.

(a) Where does the runner enter the field?

(b) When does the runner enter the field?

2. The stock price y (in \$ per share) of the software company BillySoft during the first six months of 1997 is graphed below:

(a) Is the stock price a function of time t? If yes, what is the range of this function?

(b) When is the stock price decreasing? When is it at maximum value?

(c) Find a formula for the stock price y in terms of t, for $2 \leq t \leq 3$.

(d) Over the time interval $2 \leq t \leq 3$, when is the stock price equal to \$23 per share?

(e) Let $f(t)$ denote the formula for y in terms of t. What is $f(2.6)$?